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BUTANE-PROPANE News

25¢

When Peace Comes, it will be Technology Grand

DAY-DREAM models made out
pressed milkweed or other
substances—the new postwar
S will be packed with improved
that women want . . . practical,
modern features that we can
about right now. For one thing,
nient High Broiler, that takes
tache out of broiling.

efficient features of the pre-war
Ranges, giving tireless service
e continuing to do a selling job
. . . building consumer enthu-
the newer Grands to come.

Grand

S RANGES

HOME APPLIANCE COMPANY
CLEVELAND, OHIO

MAY, 1944

HOW Hackney MAKES FRIENDS AND INFLUENCES YOUR CUSTOMERS

The uniformity resulting from Hackney production volume helps you maintain your list of satisfied customers. And the strength, *light weight* and extra years of trouble-free service that are assured by Pressed Steel Tank Company's 40 years of production experience, help you eliminate complaints.

In Hackney L-P Gas Cylinders, research and quality control, from raw material to finished product, are transformed into sat and economy for the user. Products d tined for the war effort keep rolling off t production lines of the Pressed Steel Ta Company. As war requirements become l stringent and more material is relea for civilian needs, Hackney plans to make products available to every concern. Write for details.

Pressed Steel Tank Company

GENERAL OFFICES AND FACTORY · 1487 SOUTH 66th STREET

Milwaukee 14, Wisconsin

CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

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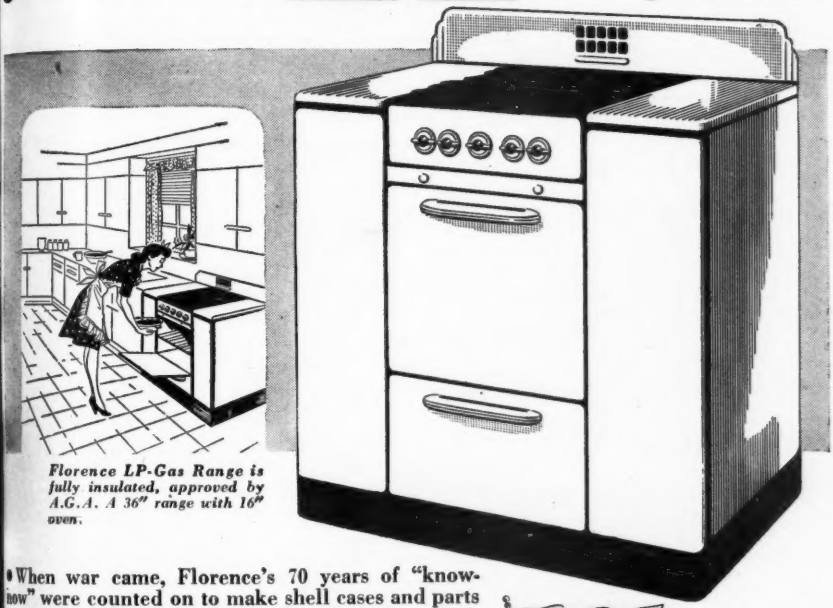
Florence "know-how" goes into this home front war job, too!

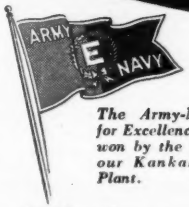


Florence LP-Gas Range is fully insulated, approved by A.G.A. A 36" range with 16" oven.

• When war came, Florence's 70 years of "know-how" were counted on to make shell cases and parts for tanks, planes and ships. We pitched in with everything we had.

Now, in the third year of war, there is a need for replacement ranges on the home front. And once again Florence "know-how" is counted on to meet a wartime need. With government sanction, and without losing stride in our main war jobs we're making a Florence LP-Gas Range.

After the war, Florence "know-how" will be reflected again in even finer LP-Gas Ranges for your customers. Florence advertising and Florence merchandising support will be at work to back them—and to back you—all the way.



The Army-Navy "E" for Excellence has been won by the workers of our Kankakee Shell Plant.

96% of our work is for America's Armed Forces.

★ ★ ★ ★ ★

FLORENCE
LP-GAS RANGES

FLORENCE STOVE CO., GARDNER, MASS.

BUTANE-PROPANE *News*

Reg. U. S. Pat. Off.

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Publication Office

Los Angeles (14)—1709 West Eighth Street. Phone: DRexel 4337.

Branch Offices

Chicago (3)—1064 Peoples Gas Building. Phone: HARrison 6634.
Washington (4)—Editorial Office, 850 Munsey Bldg. Phone: District 2118.
New York (17)—420 Lexington Ave. Phone: LEXington 2-4816.

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May, 1944. Volume 6, Number 5. BUTANE-PROPANE *News* is published monthly. Copyright 1944, by Western Business Papers, Inc., at 1709 West Eighth Street, Los Angeles 14, California. Subscription price: United States and U. S. Possessions, Mexico, Cuba, South and Central American Countries (in advance), 25c per copy, one year $1.50, three years for $2.50. All other countries $3.00 per year. Entered as second-class matter May 29, 1939, at the post office at Los Angeles, California, under the Act of March 3, 1879.

Member of Audit Bureau of Circulation; Associated Business Papers, Inc.

Publishers: G A S, The *Natural* Gas Magazine; HANDBOOK BUTANE-PROPANE GASES; WESTERN METALS.

LETTERS

Gentlemen:

We have been a subscriber to BUTANE-PROPANE *News* since its introduction to the Industry. We look forward to each issue and there is yet to be an issue wherein I am not benefited after reading it.

We are using an automatic water heater as a medium of heat for converting liquid butane to vapor. (We have a butane-air gas plant—vaporize liquid, then mix air to make 530 Btu. air gas.)

Now we need additional heat and heat exchangers. Can we use, is it safe to use, a boiler (steam) in place of water heater in connection with our heat exchanger? We have in mind a low pressure steam boiler. Do you know where this is being practiced?

M.G.A.

Alabama

The use of a low-pressure steam boiler in lieu of hot water in your heat exchanger will increase the capacity of the exchanger materially, as you will receive the benefit of the latent heat contained in the steam.

To operate the steam heating vaporizer, it is necessary to have the bottom outlet of the exchanger located high enough to allow the condensate to drain back into the boiler. If this is done, it will be necessary to install a condensate pump to handle the return water. The boiler should be equipped with automatic make-up water level control, and the burner controlled from the pressure on the boiler.—Ed.

•

Gentlemen:

We would like to get a line of water heaters for distribution through Louisiana, Mississippi and Alabama. If you can recommend some factory or pass our name on to some manufacturers, please do so.

We can use a car per month for cash deals only.

J. D.

Louisiana

We refer you to the advertising pages of Butane-Propane News and our catalog of LP-Gas Appliances and Equipment, in which you will find the names of leading water heater manufacturers.—Ed.

•

Gentlemen:

We have previously received current issues of your very interesting periodical, but you have ceased to supply us with such.

The last issue we have received was May, 1942.

If it is possible for you now to dispatch all the missing issues for the year 1942 and 1943 and continue regular supply we shall be very much obliged to you.

THE PALESTINE GAS CO., LTD.

Palestine

For some time after the present war started, the U. S. postoffice prohibited the shipment of magazines to foreign countries. The ban has now been lifted, however, and American publications can again be sent overseas. Your subscription has been re-entered. Thanks for your continuing interest.—Ed.

•

Gentlemen:

We have always operated our trucks on butane, because of the additional power obtained, and the fact that the life of the motor is considerably extended, as you well know.

For the same reason I have always operated my personal car on butane, and have had my present Ensign carburetion equipment for 7 years.

During the next year or so, I feel

it especially important to operate my car on butane, to lengthen the life of the motor, in times when new parts are almost unobtainable, and the gasoline on the market of very poor quality.

Would you let me know what the recent notification of the Petroleum Administrator means in regard to a person who has operated his car exclusively on butane for 7 years, and let me know if possible how I can obtain a permit for the above?

W. C. U.

Florida

On April 7th the PAW issued an amended Order L-86 which prohibits the use of LP-Gas in passenger automobiles.

The purpose of this order is to conserve LP-Gas and to deny its use for what might be generally termed unessential purposes.

Direction No. 2 of this amended L-86 contains the following paragraph:

> "b) The restrictions on delivery of liquefied petroleum gas. No person may deliver or otherwise supply, and no person may accept delivery of, liquefied petroleum gas for use as motor fuel in a passenger automobile."

The next paragraph, however, states that where compliance with the order would work an exceptional hardship, and unreasonable one, upon an individual he may appeal to the PAW, Interior Building, Washington 25, D.C., setting forth pertinent facts and reasons why he considers himself entitled to relief. (The complete order will be found elsewhere in this issue.)

It is indicated, therefore, that your natural recourse would be to write to the PAW in Washington, setting down all facts as to the use you make of your car and the reasons why you think you should be allowed to continue to use butane.—Ed.

•

Gentlemen:

In the April issue of BUTANE-PROPANE *News*, under "Letters" on page 6, I note a letter signed F.S.J. that might be just what I am interested in at the present time.

My butane tank truck has been giving me a great deal of trouble this winter and has delayed deliveries all winter. In fact, it has been in the shop for repairs and waiting to find parts almost as much as it has been on the road. Therefore, I am very anxious to try to get a new truck and want to know if you can give me any information as to any priorities that a fuel truck might have over ordinary trucks.

In the letter referred to above it would appear that there is some kind of release regarding the exemption of tank trucks from limitations imposed upon ordinary trucks.

H. L.

Tennessee

Your letter is correct in assuming that the reference in our Letters Department was to tank trucks for the liquefied petroleum gas industry.

I quote you herewith the original story which we published on page 19 of our December, 1943, issue:

> "Operations of tank trucks are not included in the recent action of the Office of Defense Transportation prohibiting truck operators from inaugurating new operations or extending present ones, the ODT has announced.
>
> "The ODT's recent action was taken by amendment to General Orders 3, 6 and 17."

You should bring these facts to the attention of the Office of Defense Transportation in your area.—Ed.

•

Gentlemen:

Received my first copy of BUTANE-PROPANE *News* for March and we are enclosing our check for subscription as invoiced.

We consider this book very helpful and interesting for use in our business, which is the design, research, and development of gas appliances and various types of controls for manufacturers who advertise with you.

L. M.

Illinois

We trust you will find editorial material in every issue that will be helpful in your enterprises.—Ed.

• **BUTANE-PROPANE** *News* **welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

Affiliate Now

We sat in on the closing session of the Eastern Section of the Liquefied Petroleum Gas Association a few days ago and heard C. V. Sorenson, of the Northern Indiana Public Service Co., tell the assembled LP-Gas men something of the plans and activities that are going forward in the American Gas Association, looking toward postwar industry expansion.

ELLIOTT TAYLOR

And as we listened it somehow occurred to us that it was all slightly ridiculous for a bunch of gas men, who sell natural gas out of cylinders and tanks to be listening to and looking to another natural gas man who sells gas out of a pipeline, as if he were a visitor from Mars and his message a report of the goings on in some remote and legendary field of business activity.

The laboratories of the American Gas Association are now deep in research activities looking toward the creation of better and more efficient domestic gas appliances. Soon the manufacturers of these appliances, now entirely preoccupied with war production, will be ready to resume the making of new ranges, water heaters and other equipment, based on some of the findings of the fundamental laboratory research that is now going forward.

There is right there a community of interest between natural gas and liquefied petroleum gas that in our opinion could be cultivated by both industries to their mutual advantage. It is pretty generally agreed, and was pointed out by Mr. Sorenson, that selling kitchen equipment in days to come will be a matter of selling units that are part of a completely integrated kitchen plan—a plan in which the cabinets, refrigerator, water heater, range and perhaps the washing machine and other equipment

will be designed to fit together into a harmonious and efficient interior.

The electric industry is far out in front when it comes to designing units that can be used either separately or in connection with other electrical appliances. The gas utility industry, as well as the manufacturers of domestic gas appliances realize that it is going to take the best designing, the best engineering and the best merchandising that the industries together have ever produced to head off the devastating effect of electrical competition.

The postwar promotion of gas will have to be a complete program, or it will be nothing at all. It will not be to the advantages of either natural gas or LP-Gas if one is excluded from the promotional activities of the other. Where the natural gas lines end, LP-Gas takes up; and there is no need for competition for the last consumer on the line. The main objective must be to see that the consumer who isn't now using gas at all, or who might be waverng because of the new and gaudy blandishments of the electrical industry, is gained and held for gas. The problem is the same for the gas utility as it is for the LP-Gas dealer and distributor.

We believe that postwar problems will early point up the necessity of a closer cooperation and coordination of the activities of natural and LP-Gas, and it is not too early to lay the ground work for such cooperation. A brief address by a utility man before the bottled gas dealers is all right for a start. But the next step should be toward a definite affiliation between the organized LP-Gas industry and the newly created Natural Gas Department of the American Gas Association.

Tighter Enforcement

It is not necessary to ruin your eyes on the fine print in the new L-86 order and its accompanying directives 1 and 2 to find out that the changes in what had once been a liberal order, largely enforced by cooperation rather than under threat of force, are all on the side of making its provisions tougher and harder, for those in the industry who are so minded, to evade.

We suppose it is inevitable that the law had finally to be tightened up on the entire industry to make its provisions have any effect on the small segment that has proven uncooperative or intractable. We nevertheless regret that this is so because we are of the opinion that the more specific any law becomes, the less likelihood there is of it being enforced with some common

sense instead of in its rigid technical interpretation.

It would be unfair to single out the butane and propane operators, the dealers and distributors as solely to blame for the difficulties that have brought about more rigid restriction of industry operations.

Certainly the tank manufacturers—not all of them perhaps, but more than one—are responsible for conditions that made necessary Directive 1 of the order which prohibits a manufacturer from delivering a tank unless the purchase order is accompanied by the original, approved 809 application (formerly PD-397) authorizing the installation of the tank when it is received. It just makes sense that nobody should be dumping butane tanks into a territory where they could not be legally installed, and since they were being dumped in and probably being used where they had no right to be, the industry has a new prohibition hung onto its freedom of movement.

The undesirable notoriety that descended on the industry in the Far West as a result of the reported wholesale conversions of passenger automobiles to butane possibly helped to speed up Direction 2 of the order, which prohibits the sale or purchase of any LP-Gas for use in a private passenger car. This means that either buyer or seller of the gas can be proceeded against in case of violation.

Here again it is generally conceded that the legitimate butane dealers were not at fault; it was rather the tinkerers and back yard mechanics who apparently built up a thriving business in bootleg installations on private cars. Yet the legitimate industry had to suffer.

Butane heating appliances have found their way into homes and have been added to the connected load without the dealer knowing anything about them until called on in time of unseasonable weather to make more than normal deliveries of fuel to the owner. To stop this gap the OPA has instructed local rationing boards to issue no purchase certificates for rationed appliances to be used with LP-Gas unless the applicant has an approved exception from L-86. The fact that the dealer's load was built up by the sale to his customers of appliances that the dealer himself couldn't legitimately sell results in the end in an unexpected fuel supply problem to be faced by the butane operator.

So, while we don't believe that all of this adds up to an industry without fault, we do say that some of the increased restrictions have been the result of practices over which the legiti-

mate and recognized industry has had little or no control. And the chief weight of their prohibitions and strictures will be felt by those whose shady transactions were instrumental in bringing them about.

Bulk Storage

Conditions prevailing in some localities during the past winter have emphasized that there is prevalent throughout the industry a serious shortage of bulk station facilities on the premises of LP-Gas distributors. This shortage should be remedied if possible during the months that lie immediately ahead so that the winter of 1944-1945 may be faced with the danger of service interruption reduced to a minimum.

While the army, for reasons of its own, has tenaciously refused to release any appreciable amount of steel for normal civilian purposes, it is now within the range of possibility to have new bulk storage tanks approved, particularly if they are to be erected on locations where they will serve the purpose of augmenting existing capacities.

The PAW is presently disposed to be favorable toward any requests that are shown to be for the purpose of safeguarding existing load, although complete new bulk plants are not likely to be approved, except in rare and exceptional cases.

There is a considerable difference of opinion throughout the industry as to what constitutes adequate storage in relation to winter peak sendout but we are of the opinion that even under wartime necessities for the conservation of steel, storage of a supply suitable for from three to four weeks' peak delivery should be provided.

When, as and if the steel situation becomes easier, we see definite advantages in a general increase of storage facilities by most distributors.

Increased tank capacity at the bulk station makes the operator less at the mercy of any new transportation difficulties that may develop, which is of paramount importance now. But not to be overlooked is the fact that as the time draws near when industry expansion is again in order greater station capacities will be required to handle the increased business that will result.

To the extent that those facilities can be installed now, without impairment to the war effort, they will serve the double purpose of safeguarding the gas supply of the consumer during the near future and of mitigating the postwar problems of those operators who are now laying aggressive plans for rapid expansion.

Isolated Butane Systems
Their Problems and Solutions

By K. B. ANDERSON

Superintendent, Gas Department, Coast Counties Gas and Electric Co.
Santa Cruz, California

OUR company has had in operation for 13 years six isolated butane-air systems distributed geographically from the Oregon line to the Mexican border. These systems vary in size from 250 to 1300 customers and in operating conditions from 4000 ft. above sea level to 150 ft. below, and from 0 to 130° in temperature.

K. B. ANDERSON

The six towns referred to are El Centro, Brawley, Calexico, Imperial Valley; Arcata, Humboldt county; and Dunsmuir and Yreka, Siskiyou county, all in California. Of these, El Centro is the largest.

The distribution systems are conventional, high pressure steel mains with individual regulators at each meter. The plant plans were originally designed for 550 Btu. butane-air gas, using intermittent cycle compressors boosting the mixture, combined at atmospheric pressure, into high pressure holders operating automatically between 15 and 30 lbs. per sq. in.

The plants were originally designed to take vapor from the top of liquid butane storage tanks, using heat absorbed from the atmosphere for vaporization, and reducing the vapor to atmospheric pressure through a series of regulators to a butterfly valve controlled electrically. The air was drawn from outside the building through a filter and mixed with the butane in a special tee at the intake of the compressor. The compressor units varied in size from a 25 hp. single unit in the smaller towns to two units of 75 hp. each installation in the largest town.

Pioneers in the field, it is not surprising that several "bugs" developed in the early stages of operation. The first had to do with the complexity of the automatic heating value control apparatus. It was found practical to eliminate this control entirely, operating with a fixed position of the butterfly valve, adjusting the position manually from time to time as indicated by the Connely Iron Sponge Co. "caloroptic". The butterfly valves were later replaced by "V" port valves which gave somewhat better results

due to elimination of lost motion and more accurate recording of position.

The second difficulty had to do with the vaporization of the butane at extremely cold ambient temperatures. This was corrected by the installation of liquid vaporizers, whereby the liquid was vaporized, during the winter season, in a separate unit surrounded by hot water from a General "big four" booster water heater.

The third difficulty arose from the dependence upon electric power. Located, as some of the plants were, in isolated mountain regions, power outages of several hours were not infrequent. This difficulty was solved first by provision of a special pulley to be attached to the rear axle of a Ford "Model A" pick-up located outside the building, whence the compressor could be driven by a long flat rubber belt running through a port in the building wall.

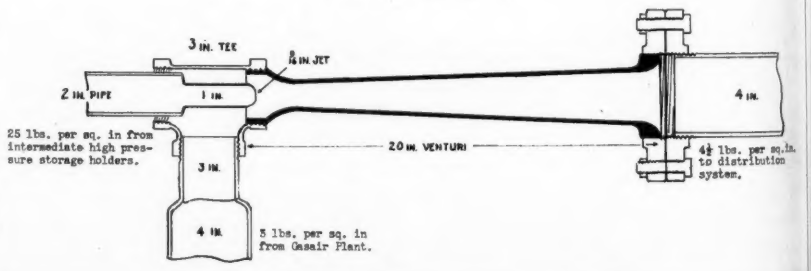
Later a stationary engine (usually a "Model A") was located in a galvanized iron lean-to outside the compressor room and arranged so that in an emergency a rubber belt could be thrown over the compressor fly wheel and operated under manual control until power service was resumed. As an improvement, in later standby equipment, a gas engine driven Roots-Connersville blower was designed to make gas directly into the distribution system. This had the advantage of by-passing the entire plant, thus permitting maintenance and repair of all units and vessels.

Converted All Six Towns

Because of utilization difficulties inherent in the 550 Btu. gas (Bureau of Mines investigation indicated 550 too lean even for primary mix in burners), because of imminent capacity deficiencies in some of the plants, and because of certain operating and power savings, it was decided in 1940 to convert all butane towns to 1000 Btu. gas.

At this time experiments were carried on with various means of making gas directly into the system with the aim of reducing power costs. Among these was the installation of one 5 MCF per hour Gas-

FIG. 1, VENTURI BOOSTER


3 IN. TEE
⅜ IN. JET
2 IN. PIPE
1 IN.
4 IN.
25 lbs. per sq. in from intermediate high pressure storage holders.
20 IN. VENTURI
4½ lbs. per sq.in. to distribution system.
3 IN.
4 IN.
5 lbs. per sq. in from Gasair Plant.

air* machine utilizing a direct fired vaporizer and the natural vapor pressure of the butane (augmented by introduction of made gas above the liquid during low temperature periods) as a source of energy to entrain air through a venturi tube against 3 lb. pressure carried in the distribution system. Although many minor difficulties were experienced in the operation of this apparatus, attractive savings were shown possible and, further, the elimination of dependence upon electric power promised relief from the most common source of emergency operation.

Early in 1942 wartime expansion caused a serious shortage of production capacity in a neighboring utility. Surveys revealed that the needed capacity could be gained with the minimum use of critical materials by the conversion of our plants to the gas-air system and the release of our high pressure holders, compressors and electric motors to the neighboring utility. By August our company was launched into a "Henry Kaiser" type of expedited performance by which at the end of December, 1942, the following had been accomplished:

1. All six towns had been equipped with gas-air apparatus making directly into the distribution systems.

2. High pressure holders, compressors, electric motors and allied apparatus had been stripped from the plants and shipped to the neighboring utility.

3. By converting one high pressure holder to a butane-liquid vessel, juggling liquid vessels from town to town, and installing one second-hand liquid butane vessel, the liquid butane storage facilities in three of our most isolated towns were doubled, making it possible to take care of increased use and provide security against the uncertainties of butane availability and transportation schedules.

*Manufactured by Gasair Corp., San Francisco.

Summary for First Year

After one full year's operation, our experience can be summarized as follows:

1. The piping, wiring and general arrangements of each plant have been greatly simplified.

2. The operating cost has been reduced to the almost entire elimination of electric power. This saving is reduced somewhat by the use of fuel for vaporization (approximately 1% of the plant output).

3. Maintenance cost has increased due to the necessity of frequent replacement of minor parts. This gives promise of reduction as improvements are made in the apparatus.

4. Somewhat less uniformity in the heating value of the gas produced, punctuated by occasional production of very rich gas causing an epidemic of complaints and necessitating purging of the mains. On the whole, the tendency of this apparatus to make rich gas is perhaps safer than the tendency of the former system to make lean gas.

5. About equal, although not directly comparable, security against total outage. By way of explanation, each plant is now equipped with at least two units and so sized that the peak loads can be carried with one machine always available as standby, heated up and ready to cut in automatically upon failure of one of the

operating units. As dependability increases by continual minor improvements in the appartus, this security should soon become entirely satisfactory. With the former plant, high pressure storage capable of carrying a peak load from 15 minutes to several hours provided the time interval necessary for an operator to reach the plant and place the standby equipment in operation. If the operator could not be reached in time, however, the former plant lacked the security of automatic continuous standby operation. With the new plant, in the event of failure of the standby, or more than one unit of the operating equipment, the lack of storage would preclude the possibility of the operator reaching the plant in time to start standby equipment. Therefore, the conclusion that the two systems are essentially equal in security against outage. The new system, however, offers more promise of ultimate improvement.

6. The gas-air equipment has a definite pressure limitation, 3 lbs. per sq. in. being the maximum output pressure that can be depended upon, making 1000 Btu. butane-air gas at sea level.

This pressure limitation provided an interesting problem in our largest town. Due to growth of load and restriction on plant expenditures under WPB, 3 lbs. per sq. in. is insufficient to handle peak hour loads. Although this particular plant still has high pressure "made gas" storage, the capacity of the holders carrying the entire peak load would be less than one hour and the capacity of the electric driven high pressure compressor is only one-fourth of the peak load.

There is also a butane engine driven Roots-Connersville standby installation in this plant which is capable of carrying the entire load, either making gas direct from butane vapor and air through a Kemp mixer, or as a booster from the gas-air plant into the system. In either case, however, constant attention of an operator is required during operation.

In order to make the best use of the facilities available, it was decided to try the principle used in the gas-air machine itself, namely, an inspirator type booster utilizing the energy in the high pressure gas to boost the 3 lb. gas to 4½ lbs. A 4-in. McKee high pressure inspirator burner with a 1½-in. throat diameter was used as the inspirator. The 3 lb. gas from the gas-air plant was introduced into the air mixer by means of a 3 in. malleable iron tee and 25 lb. gas regulated from high pressure storage, through a conventional ⅝-in. diameter spud. A check valve was introduced into the system in such a way that the high pressure gas could be turned on automatically by a time clock at 6:30 a.m. in order to pack the distribution system before the morning peak.

Production Was Boosted

It was found that 20,000 cu. ft. per hour of 3 lb. gas could be boosted to approximately 4½ lbs. by the use of 10,000 ft. of 25 lb. gas, thus resulting in production of the desired sendout of 30,000 ft. per hour at 4½ lb. pressure. The high pressure holder by this means is able to carry the load easily until the operator comes on duty at 8:00,

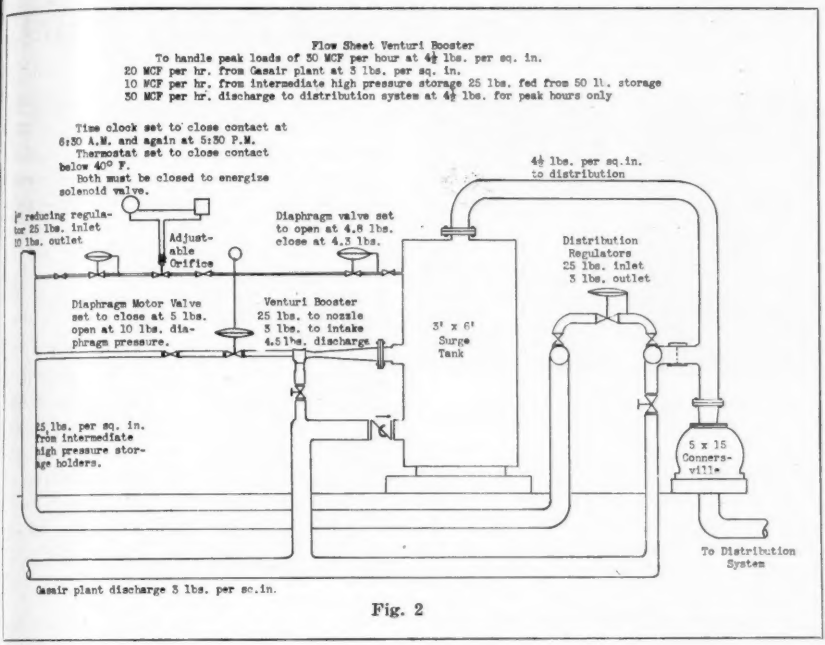

Flow Sheet Venturi Booster
To handle peak loads of 30 MCF per hour at 4½ lbs. per sq. in.
20 MCF per hr. from Gasair plant at 3 lbs. per sq. in.
10 MCF per hr. from intermediate high pressure storage 25 lbs. fed from 50 lb. storage
30 MCF per hr. discharge to distribution system at 4½ lbs. for peak hours only
Time clock set to close contact at 6:30 A.M. and again at 5:30 P.M.
Thermostat set to close contact below 40° F.
Both must be closed to energize solenoid valve.
4½ lbs. per sq.in. to distribution
Diaphragm valve set to open at 4.8 lbs. close at 4.3 lbs.
Adjustable Orifice
Distribution Regulators 25 lbs. inlet 3 lbs. outlet
Diaphragm Motor Valve set to close at 5 lbs. open at 10 lbs. diaphragm pressure.
Venturi Booster 25 lbs. to nozzle 5 lbs. to intake 4.5 lbs. discharge
3' x 6' Surge Tank
25 lbs. per sq. in. from intermediate high pressure storage holders.
5 x 15 Connersville
To Distribution System
Gasair plant discharge 3 lbs. per sq.in.

Fig. 2

whereupon the engine operated booster is put into operation and the high pressure holders refilled for use during the afternoon peak.

Fig. 1 shows this "venturi booster", and Fig. 2 the general plant arrangement.

This apparatus, while inefficient, is so simple in operation that it is thought to have possibility for the utilization of existing low pressure storage on high pressure systems.

All plants maintain standard inventories of spare parts and are provided with complete operating instructions and diagrams. Tool boards upon which are mounted the necessary tools for maintenance and operation, and periodic inspection and preventive maintenance procedure, insure continuity of performance.

Alarm systems over leased wires to office and home of operators warn of:

1. High or low pressure in butane storage.

2. High or low pressure in "made gas" (the principal cause of Btu. variation).

3. Pilot outage in vaporizers.

4. Power outage.

5. Low main pressure at extremity of distribution system.

The entire operating, maintenance, commercial, and sales functions are performed in most of the towns by one man, so it is obvious that it is necessary for the production apparatus to function smoothly.

Will Sell LP-Gas Beyond Utility Mains

MARK ANTON

H. E. THOMAS

THROUGH an order entered by the Security Exchange Commission on March 24, it was disclosed that H. Emerson Thomas and Mark Anton, pioneers in liquefied petroleum gas business, have been buying into manufactured gas utilities. The order gave approval to the sale and purchase by Messrs. Thomas and Anton, of the assets of the Athens and Sayre (Pennsylvania) Gas Co. to a company formed by these men, to be known as the Valley Cities Gas Co. The order further referred to the purchase by Messrs. Anton and Thomas of all the stock of the Gas Light Co. of Waverly, N. Y.

The purchase of these properties increases to four the number of manufactured gas utilities that are now owned by these two men. In November they purchased the Martinsburg Gas Co. (West Virginia) and in January the Jersey Shore (Pennsylvania) Gas Co. Mark Anton has had experience in operating utilities inasmuch as in 1931 he built the Belvidere, N.J., gas plant of the Warren County Gas Co., and thereby became one of the first utility operators in the country to use liquefied petroleum gas in street main distribution.

H. Emerson Thomas, who is doing consulting work in the liquefied petroleum gas field, covering various phases of management and construction of bulk stations, industrial plants and similar installations, has worked with utilities operators on the installation and operation of many utility LP-Gas plants and distribution installations.

Both men have stated that it is their intention to sell and distribute liquefied petroleum gas beyond the gas mains of the four utility companies which they recently purchased. These plants are all strategically located so as to give contingent fields of operation to the territory within which Suburban Gas Co. of New Jersey, which Mr. Anton owns, is now operating.

While the purchase price of the utilities involved has not been disclosed, the Public Utility Commission records of the companies purchased show a utility plant valuation in excess of $1,000,000 for these four plants. By engaging in dual operation, with the distribution of both manufactured and liquefied pertoleum gas, Mr. Anton and Mr. Thomas state that they feel they are fortifying their postwar position in the gas industry and will be in a position to have a unified program of sales and operation that will make it possible for them to effectively meet electric competition.

Mr. Anton and Mr. Thomas were the founders of the Liquefied Petroleum Gas Association (formerly National Bottled Gas Association). Mr. Anton served for the first three terms as president as well as being chairman of the NRA industry code committee. Mr. Thomas served as president for the following two terms.

Eastern Section Told to Prepare For Postwar Selling and Competition

By ELLIOTT TAYLOR

TWO HUNDRED LP-Gas dealers turned out for the annual meeting of the Eastern Section of the Liquefied Petroleum Gas Association held in New York City, April 13-14. The program was largely built around the discussion of postwar plans and proposals, with some consideration being given to the very practical programs that are now being formulated by manufacturers of various gas utilization equipment.

P. A. ANDERSON

With Section Chairman Peter A. Anderson, of Utilities Distributors, Inc., in the chair, and assisted by Vice Chairman Roy E. Forsberg, Country Home Gas Service, the convention got under way with the luncheon session of April 13, at which Frank W. Lovejoy of Socony Vacuum Oil Co., Inc., was guest speaker.

In the business session following the luncheon Paul K. Thompson, Chief of the LP-Gas Division of PAW, went over in some detail the new provisions of Order L-86 as amended April 7. The new amendments are designed to plug up loopholes that were allowing operators in the industry to put in unauthorized installations without much risk of detection, to build up load to the danger point without fear of government crackdown, and to generally imperil the future of the industry in the shortsighted grab for an extra personal advantage for today. The tight spots of last winter in which there was always impending danger of delivery failure were largely the fault of those who added additional load that should have been kept off the lines.

If there is no further industry expansion, Mr. Thompson is of the opinion that the propane supply will be ample, with transportation facilities able to care for the normal load; but butane will be increasingly critical in the coming months, although not reaching the point of great distress during the winter of 1944-45.

B. O. Brown, of Servel, Inc., spoke briefly on what the gas refrigerator manufacturers have in store for the future. There will be no startling changes in design, particularly in the immediate postwar models. There appears to be little demand for extra large capacity boxes; quick freeze units are not practical for gas refrigeration at present; it will take a year after restrictions are lifted before any appreciable volume production of gas refrigerators is achieved. Servel expects a 50% increase in gas refrigeration in the new home market following the war. He warned operators to be prepared to set up their own postwar merchandising plans, and particularly to be on the watch for good salesmen who can be utilized to advantage.

K. M. Clark, Ruud Manufacturing Co., spoke on the immediate postwar

There were some good speakers at the Ea

era as a period of transition, with the manufacture and the styling of water heaters and other gas equipment taking up about where they left off when the war started. Foreseeing that there would be lively competition for the consumer's dollar, he emphasized the importance of lining up selling ability to divert the proper share of the pent-up purchasing power into gas industry merchandise.

H. E. Nickerson, Glenwood Range Co., reviewed the present and future outlook for gas ranges. He urged the viewpoint that the dealer selling quality merchandise stands to be the one who will show the greatest profits at the end of every year.

Dismissing the so called "Victory," or permitted models, of gas ranges, the speaker observed that "the sale of Victory cookers for use with LP-Gas was one way of inviting your customers to be an electric range prospect." He also discounted the dream world approach to the gas appliance of the future, saying that from surveys made of housewife preferences, many companies are now planning new models that will have a stepped-up

...ion meeting and an attentive audience, too.

eye and gadget appeal, but little fundamental change in oven and top burner principles. Mr. Nickerson closed on the note that "LP-Gas dealers are on the threshold of the greatest volume of business in their history" and that they should "continue to sell quality merchandise that will in turn keep the customer sold on LP-Gas."

Friday's luncheon speaker, who drew an overflow crowd, was Lowell Thomas, noted radio newscaster, who appeared through the courtesy of Sun Oil Co., his radio sponsor.

The afternoon session was largely devoted to a discussion of publicity and promotion programs under the leadership of E. Carl Sorby, George D. Roper Corp., who is chairman of the LPGA advertising and publicity committee. Chairman Sorby sounded off the discussion by a strong plea for industry support of the publicity campaign which is now being undertaken by the Lawrence H. Selz organization, Chicago. The present campaign marks the successful termination of almost three years of effort on the part of the committee to get either an advertising

E. CARL SORBY

or a publicity campaign started with the full support and backing of the industry. He warned his listeners that "without some sort of postwar planning we will be caught as unprepared for peace as we were unprepared for war," and opined that many who think they are doing some planning are in reality "just planning to plan".

The progress of the publicity program to date was reported by Lawrence H. Selz and Frier McCollister, of the Selz organization. The approach to the public consciousness is being made through radio, newspapers and magazines and the technique is to present cooking information of a type that has a general news appeal with incidental reference to LP-Gas contained in every release. The Selz organization emphasizes the fact that they do not try to "sneak" in their references to the product being publicized, but rather present it in a context that, taken as a whole, is news. These radio scripts sent out to 700 radio stations have resulted in 73 requests for more material of a similar nature, from stations broadcasting in 38 states. Home economics releases, written to appeal to country weekly newspaper readers, have been sent out, resulting in requests for additional handouts from 400 papers thus circularized. Other fields to be invaded with cooking, home economics, and other material related to the use of LP-Gas will be women's magazines, daily papers, and trade publications. Ultimately it is planned to create consumer give-away material for dealers to use in circularizing customers and prospects with matter tied in with the national publicity story.

C. V. SORENSON

The final speaker of the Friday session was C. V. Sorenson of Northern Indiana Public Service Co., who has been active in the postwar planning studies that are under way at the American Gas Association. Dwelling chiefly on one phase of the Gas industry's planning, he advised that work is being carried forward to the end that gas appliance design may be integrated with any and all new trends in kitchen design and styling for the postwar building market. He spoke encouragingly of interest that builders and architects have shown in adapting gas appliances to the kitchens of tomorrow, and pointed out that one of the major efforts of the AGA advertising has been to keep gas in the forefront of all new trends in styling or designing that will affect the fuel to be used in any part of the home. He also predicted that the AGA advertising would soon abandon the fanciful note that it had been striving for, and would deal in a more realistic and understandable presentation of the subject in future national campaigns.

No elections were held at the April meeting, as under the newly amended constitution of the LPGA, the section chairmen are to be elected by mail at the time of the annual election of other association officers.

A motion picture "Flight Log," shown through the courtesy of the Shell Oil Co., Inc., was the closing item on the program.

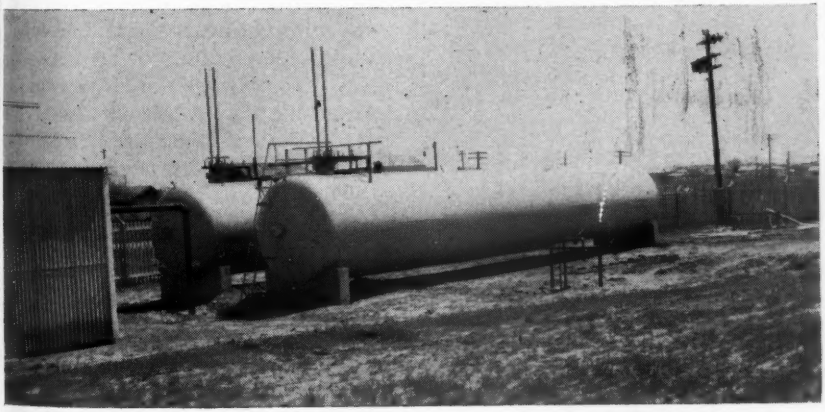
Propane-Air Standby Ensures Fuel for Naval Air Facility

By O. D. HALL

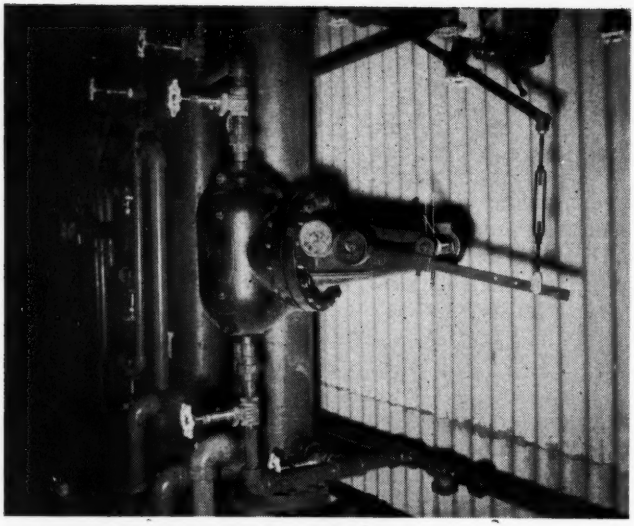
A 60,000-gal. propane-air standby plant will soon be ready to take over the water heating, space heating and cooking load at the Naval Auxiliary Air Facility at Shawnee, Okla., should the natural gas supply at the base fail for any reason.

With a few adjustments it will be possible at a moment's notice to turn propane gas into the natural gas distribution system at the base. Work on the standby plant was nearly completed early in April. A tall picket fence was being placed about the plant for extra protection, although it already is located on open ground several hundred yards from main buildings within the base enclosure area.

The Oklahoma Natural Gas Co. is supplying natural gas to the air facility. The peak load at the base for any one day last winter was 250,000 cu. ft., but the winter was rather mild. The Oklahoma Natural has been able thus far to meet all demands of military installations, industrial, commercial and domestic consumers during the war and last winter was able to sell a surplus of natural gas to one other large gas utility. But in case of un-



Outside installations of propane-air standby plant at Naval Auxiliary Air Facility, Shawnee, Okla.; showing two 30,000-gal. supply tanks, filler and vapor equalization lines and section of corrugated, asbestos sheeted, fire proof, housing plant units. (Official U. S. Navy Photograph.)



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Showing explosion proof, dust proof electrical switches connected to pressure gage, pressure reducing valves and strainer valves. (Official U. S. Navy Photograph.)

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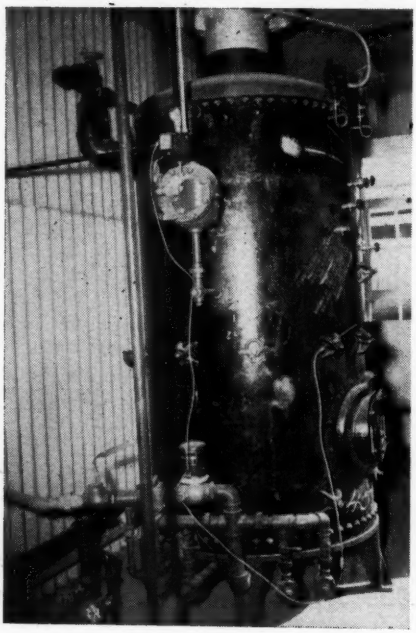


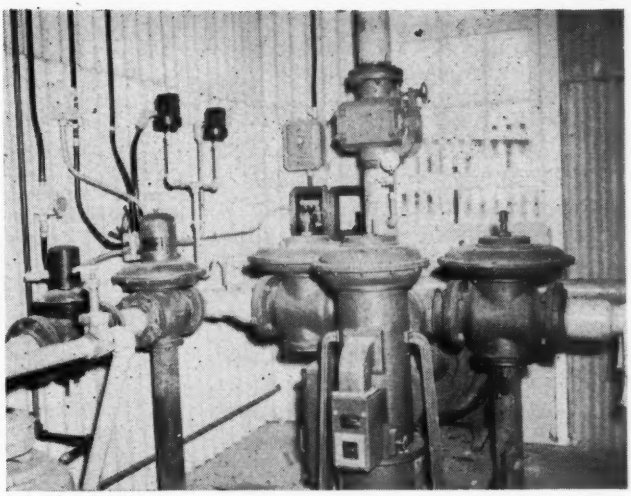
A 20-hp. hot water boiler which vaporizes fuel going into the gas distributing lines. (Official U. S. Navy Photograph.)

expected disasters affecting natural gas transportation lines or cold weather demands the propane standby plant would be ready to take over for the duration of the emergency.

Two large propane tanks set horizontally on concrete piers have a capacity of 30,000 gals. each, and were filled with 25,000 gals. each at 135 lbs. pressure when this writer visited the base.

The American Butane & Propane Gas Co., Oklahoma City, supplied the propane for these tanks. The tanks are designed to carry up to 220 lbs. per sq. in. pressure before automatic release valves begin to operate. They are adjusted to cut off when the pressure reduces to 170 lbs.

Filler and vapor equalizing lines beside the tanks facilitate unloading of propane from the delivery



Showing ball bearing head valve regulator, two vaporizers connected to gas service regulators, a balanced-valve low pressure regulator, magnetic valve control, gas shut-off valves and cone-type proportioning valve, 5-hp. motor and 6-in. flame arrestor. (Official U. S. Navy Photograph.)

trucks by admitting propane vapor from the supply tanks to the delivery tanks at 100 lbs. pressure. Each supply tank is equipped with an A-301 Rotar gage. The raw propane is carried through a Reynolds gas control regulator into a corrugated asbestos sheeted, fireproof building to the hot water vaporizing units. After the propane is vaporized it passes through an air mixing unit and is reduced to about 1,000 Btu's per M. cu. ft., so that in an emergency it can be turned into the natural gas distribution system and utilized at the base in blower-type Reznor suspended unit heaters, floor furnaces and for firing two steam boilers, one in the mess hall and one in the dispensary.

Equipment within the standby plant building includes explosion proof, dust proof electrical switches connected to a pressure gage and Fisher-type pressure reducing valves which take in the fuel at an inlet maximum pressure of 200 lbs., and reduces it to a minimum of 10 lbs. These valves are protected by Fisher strainer valves to by-pass foreign matter.

Other installations include Fisher-type 71-C ball bearing Rotar head valve regulator, two vaporizers connected to Fisher gas service regulators to receive gas at a maximum of 150 lbs., and reduce it to 5 lbs.; an Emco balanced-valve, low pressure regulator; magnetic valve control, 115 volts, 60 cycles; McKee gas shut-off valves and McKee cone-type proportioning valve; and electric 5 - hp., 3 - phase, explosion proof electric motor which mixes air through a 6-in. flame arrestor and delivers it into the gas distribution system.

In an adjoining room is a 20-hp. McKee hot water boiler equipped with a magnetic automatic control valve and a return-line pumping system.

FORECASTING SUPPLY

During War At War's End Three Years Later

FROM the standpoint of the liquefied petroleum gas industry, the most important paper delivered before the April convention of the Natural Gasoline Association in Dallas, Texas, was that which discussed the technical and distribution problems of LP-Gas for the remaining war period and the years immediately following.

G. L. BRENNAN

The paper was presented by G. L. Brennan, manager of the LP-Gas Division of Warren Petroleum Corp., Tulsa, Okla., and was the composite opinion of several large producers and manufacturers of butane and propane. Because of universal interest in the subject matter, the conclusions are published herewith, practically in their entirety.—Editor.

THE natural gasoline industry with its growing production of various grades of natural gasoline, iso-pentane, normal butane, iso-butane and propane, occupies a very important position in the war effort, since many of these products are essential in the manufacture of high octane aviation gasoline, synthetic rubber and many other critical chemicals, fuel for industrial heat treating processes of all kinds, primary and secondary supplies for gas utility companies, and a sole source of domestic fuel for some two million families throughout the United States, many of which, particularly in the South, use butane and propane for house heating. The demand for normal butane-propane mixtures, iso-butane and propane has in most areas exceeded the supply that could be delievered during the winter months of 1943 and 1944. This condition has been cause of widespread conjecture, guess work and forecasting, indicating to the program committee of this convention that the future of this part of the natural gasoline industry was of more than ordinary interest.

Producers Express Opinions

This paper has resulted from answers given to a questionnaire sent to several of the more prominent producers and marketers of these products, the following submitting replies: Carbide & Carbon Chemicals Corp.; Cities Service Oil Co.; Lone Star Gas Co.; Phillips Petroleum Co., and Warren Petroleum Corp. As a result it is believed that some reliable predictions can be made, although during the balance of the war period there can be such radical changes in high octane gasoline production that many of the opinions regarding this subject could be reversed.

The balance of this report will state each question submitted to the various companies with condensed answers. These answers show the majority consensus of

opinion together with comments on opinions which vary from this. Some of the more especially interesting statements are quoted verbatim.

Question I. Will the supply of propane, butane and mixtures increase or decrease in each of the periods mentioned above, namely,

1. Balance of war period;
2. Immediate postwar period;
3. Three to four years of peacetime developments,

keeping in mind the demand for these products as fuel and raw material for 100 octane aviation gasoline and butadiene?

Answer 1. 1. Production of butane and propane and mixtures will increase during the balance of the war period to the extent that the supply of propane will no doubt be adequate to meet contemplated demands, but the amount of butane that will be available for the fuel markets during the coming winter will very probably be inadequate, and might bring about a shortage more acute than prevailed during the past winter. One company made the statement that it was very unlikely that there would be any increase in the supply of either of these products insofar as the fuel markets were concerned.

2. During the immediate postwar period, opinions, with one exception, are expressed that there will be plentiful supplies to large surpluses of all of the light hydrocarbons, although one company believes that the 100 octane aviation gasoline and rubber programs will be continued for some time after the war.

3. During three or four years of peacetime developments, there will be plentiful supplies of propane and butane, although the possibilities are good that the demand for butane in chemical processing plants may be competitive with fuel demands, thereby reducing the amounts available for sale through these particular channels.

Question II. What is your opinion as to any change in the relative value of propane versus butane at natural gasoline plants, due to possible new uses or expansion of present markets for these hydrocarbons?

Answer II. Predominant opinion on this question is that there will be little, if any, change in value of liquefied petroleum gas during the war or as long as Government price control prevails, but that, when such controls are removed, the value of butane will probably increase, although one producer feels that the value of propane versus butane will be in reverse due to the fact its higher cost of manufacture must net back more at the plant. Perhaps one of the best comments on this question of all submitted, is as follows:

G. R. BENZ

> "When economics again dictate relative prices, it is expected that the value of butane will increase with respect to that of propane due to the greater process value of butane in the manufacture of motor fuels, aviation gasoline, synthetic rubber and other chemical products."

Question III. In your opinion, do you expect important changes in methods and costs of transportation of liquefied petroleum gas, keeping in mind tank car, transport truck or barge movement?

Answer III. The answers to this question vary markedly, but all are agreed that methods of transportation will not change materially in any of the periods considered, but half believe costs will be lower in the future; others feel the long-term trend will be upward, and we quote one of the more interesting comments:

W. A. NAUMER

"Future transportation means and cost are dependent upon many factors such as labor costs and weight and load restrictions by various states in the case of truck transportation, the decision of the ICC on pending freight rate increases and weight per gallon used to calculate rail costs. Barge or tanker transportation may find limited fields of use. Future transportation costs are expected to increase rather than decrease."

Question IV. What is your opinion as to the trend in demands for the following types of consumers:

1. Domestic—
   (a) Propane,
   (b) Butane;
2. Industrial;
3. Utility;
4. Chemical;
5. Internal combustion engine;
6. Refinery—
   (a) Blending,
   (b) Processing.

Answer IV. 1. The use of the word demand in this question may be misleading, and it should be defined, in view of the answers, to mean increased shipments and not increased demand from consumers, which demand cannot be satisfied due to restrictions on utilization equipment and appliances. All agree that increased shipments to domestic consumers can increase little, if any, during the war but that immediately after the war, this type of business will have a large increase; some feeling that propane volumes will grow more rapidly. Due to the shutdown of federal housing projects, there may be decrease in demand immediately after the war is over.

2. Opinions on the industrial outlet for liquefied petroleum gas vary considerably, but it is apparent that there will be lower demand in the immediate postwar period due to industrial conversion programs but that after that time there will be a healthy increase. Several point out that this will be influenced materially by increased natural gas distribution in large industrial centers.

3. Here again, opinion is divided, although it is apparent that immediately after the war utility use will probably decrease. Future demands depend somewhat upon distribution of natural gas, but the small-town gas plants now using other raw material, offer a good market to develop.

4. Nearly all agree that there will be an increasing use of liquefied petroleum gas in the chemical field, but that the volumes of propane may be relatively small compared to the total sales of this product, and further that butane will probably be in greater demand for chemical use than will propane when war restrictions on new construction are removed.

5. Consensus of opinion in answer to this question is that there will be some increase in the internal combustion engine field, but the increases will probably be confined to special uses. One analytical comment on this subject is quoted below:

"No material increase in this type of use is expected although a limited

amount of LP-Gas-fueled heavy duty hauling, construction and oil well drilling equipment is expected to continue using LP-Gas in those locations where definite economic advantages exist. Probable increased octane rating of motor fuels and improved engine design are expected to reduce the present incentive to use LP-Gas for many engine applications."

6. Answers to this question appear to be in variance and considerable guesswork seems to have been done, but comments from two different companies, which are quoted below, are of considerable interest:

"The blending of butane by the refiner will, as in the past, consume a very large percentage of the total production for purposes of obtaining required vapor pressure. Of course, in the past, a great deal of this butane content of motor fuel has been contained in natural gasoline shipped to the refiner. Other papers on this program will no doubt set forth a clearer picture of this outlet for butane. With reference to processing butane or iso-butane manufactured at natural gasoline plants or refineries, the economics of various methods of processing crude oil will probably determine in each specific refinery, what, if any, processing of normal or iso-butane will give the largest dollar return. It appears that processing of these materials may be seasonal, so that only the volumes in excess of required vapor pressure in motor fuel will be further processed. This comment is made on refinery production of motor fuel and exclusive of any chemical manufacturing directly or indirectly involved."

"Processing of butane, principally in refineries, will increase to some extent, but not greatly unless cheaper processes are developed for such conversions. In other words, present conversion processes produce the high octanes at too high a cost for use in blending with motor fuels in the postward period; hence, a sharp increase in such processing can only develop by reducing cost in the production of the finished converted materials."

Question V. Can LP-Gas producing plants be provided with a more uniform summer and winter load in those areas where there now exists an important house-heating demand by means of the following:

1. Increased storage—
   (a) At plants,
   (b) At distribution points,
   (c) At consumers;
2. Increased summer loads;
3. Changes in composition of product;
4. Higher working pressure storage;
5. and transportation equipment;
6. Reduction of standby loads.

Answer V: 1. Opinion is unanimous that more storage throughout the industry is desirable, particularly in those areas where large house-heating demands prevail. Where this storage should be installed varies somewhat with each company's principal transportation methods although it appears that the most important assistance can be rendered by additional quantities of storage installed at distribution points from which the fuel is distributed to consumers.

J. W. MARTIN

2. Unanimous opinion prevails as to the desirability of increasing summer loads. It should be pointed out that at the present time in the southern states the ratio between summer and winter load is considerably higher under conditions which almost completely restrict new installations. These installations generally made during the warmer months formerly provided a very sizeable demand. This

demand is now non-existent and the extreme ratio between summer and winter load is presently exaggerated.

3. Changes in composition appear to be desirable, particularly as to the use of higher propane content of butane-propane mixtures.

4 & 5. All are agreed that higher working pressure storage and transportation equipment is desirable, particularly in view of increased flexibility and possible future availability of higher vapor pressure mixtures.

6. All opinions expressed on this question reflect the desirability to reduce standby loads, since practically all of them prevail at the same time as other peak demands.

From the information submitted above the following general conclusions are indicated:

1. Supplies of LP-Gas for fuel purposes will be adequate for those requirements where propane or high propane content mixtures may be used, but that for the duration of the war, the supply of butane and low propane content mixtures for fuel may be inadequate, especially during the coming winter. Postwar supplies of these products will be ample.

2. Little change in the relative value of propane and butane can be expected by the producer while Government price controls prevail. Subsequent to such a time, opinion indicates that butane may have greater relative value to the producer than propane.

3. Except for possible changes in rail rates on LP-Gas, it is not expected that costs or methods of transportation will change materially during the war. Postwar opinion is divided as to increase or decrease in transportation costs.

4. Government restrictions will prevent increase in domestic demand for these products until some major change in the war program occurs, but it is expected that domestic sales in the postwar period will have a marked increase. Postwar industrial uses will probably be influenced to a considerable extent by new distribution of natural gas to large industrial centers. Increased use of these fuels for internal combustion engines will probably be confined to highly specialized applications. Utility uses will also be influenced by natural gas distribution.

The use of LP-Gas for the manufacture of chemicals will no doubt increase in the postwar period with the possibilities that butane will be in greater demand than propane.

5. The type of postwar motor fuel, the availability and price of crude oil, new refinery processes and many other factors will have an important bearing on the volume of butane and propane supplied to a large variety of markets.

In conclusion, I want to again acknowledge the valuable cooperation of George Benz, Phillips Petroleum Co.; Stanley Crooks, Cities Service Oil Co.; Woodward Martin, Lone Star Gas Co., and W. A. Naumer, Carbide & Carbon Chemicals Corp., without whose contributions this compilation of opinion could not have been made.

Skid Tanks Supply Butane For Oklahoma Oil Well Drilling

THE tempo of wildcatting and new production is being stepped up materially by the use of liquefied petroleum gas in the oil and gas fields of the Southwest. The R. J. Allison Co., of Tulsa and Shawnee, is doing a big job in supplying this need, a visit to the Shawnee office of the company revealed.

The company specializes in furnishing LP-Gas tanks in Oklahoma, northwestern Texas, New Mexico, and Kansas oil fields. More than 50 Allison tanks were in the oil fields, most of them on a rental basis, supplying fuel for drilling rigs when the Shawnee visit was made early in April.

At that time two skid tanks of 830-gals. water capacity each were being loaded on a 2½-ton International truck at the company's plant, 1015 West Benedict, Shawnee. These tanks were to be delivered to the Warren Bradshaw Drilling Co., to fuel the sinking of a well 11 miles west of Ardmore, Okla., R. S. Hall, manager of the company at Shawnee, said.

Butane, with proper mixture of propane, according to the season, is furnished to the oil fields at prevailing rates, where the oil company owns its tanks, or at ½c more per gallon where the Allison company furnishes the skid tank. The additional one-half cent operates as a rental charge. LP-Gas constitutes the fuel for drilling the well, but if natural gas is discovered in the well or in other parts of the field in sufficient quantities to be spared for fuel purposes it is substituted to generate power for further drilling operations in that field. The skid tanks, which rest on large sled-runner-shaped tubular metal skids, are easily loaded by two men aided by a winch on a truck, for transportation to the field or to other locations. They rest securely and solidly on these skids while in use, thus making installation and moving simple operations.

Within the past 60 days the Allison company purchased two new (1942 Model) 2-ton tank trucks for

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Two twin-tank LP-Gas trucks like these, recently purchased for the Shawnee, Okla., division by the R. J. Allison Co., have fuel supply tanks on top-front of truck tanks for safety reasons. Note also rear bumper specially painted for safety.

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the Shawnee district. There are twin tanks on each truck, and each has a capacity of 688 gals., water measurement.

Each truck is equipped with a 60-gal.-per-minute pump and two rotary gages manufactured by L. C. Roney, Inc., Los Angeles. The Allison company has placed the 55-gal. fuel tank which operates the LP-Gas fueled engine on each of its trucks, on the top and between the two large tanks, as a special safety measure. This reduces the hazards of damage to the tanks from side-swiping or collisions. The tanks are brightly covered with aluminum paint and the bumpers, as another safety measure, are painted diagonally with alternating stripes of shining black enamel and aluminum paint.

Trucks Serve Double Purpose

Each twin-tank delivery truck, powered by LP-Gas, employs an Ensign carburetor, convertible through easy adjustment to handle either LP-Gas or gasoline, without necessity of removing or replacing the carburetor equipment. These trucks are used in making deliveries to the oil fields as well as to domestic and commercial users within the territory served from Shawnee.

R. J. Allison started in the LP-Gas business at Shawnee in 1937, later expanding to Tulsa, as headquarters office. He owns a controlling interest in the business. T. J. Allison is manager at Tulsa.

Some idea of the company's business activities is indicated by the sales record at Shawnee, which shows that about 150,000 gallons per month of LP-Gas are being sold out of that office alone.

The company does not maintain storage capacity at Shawnee, other than the fuel in its delivery tanks. It has arrangements with several refineries and purchases gas from the nearest or most easily available plant so as to effect savings on rubber and depreciation on its automotive equipment through shorter hauls during the war period.

Safety-Conscious Fire Marshal Is Publishing Oklahoma Codes

T. J. Ellis, Oklahoma state fire marshal and liquefied petroleum gas administrator for the state, is having published a pamphlet carrying vital information relative to administration of laws and regulations affecting LP-Gas.

The "Foreword" to the pamphlet explains its contents and purposes as follows:

"The growing demand for L-P Gases for domestic, industrial, commercial and motor fuel uses and the attendant development in the construction of equipment pertinent to its handling and the method of installation of dispensing systems is the reason for the issuance of this pamphlet in its combined form.

"In this pamphlet there is a copy of the Oklahoma law relating to the liquefied petroleum gas industry in the State of Oklahoma and which concerns the administration of the law by the State Fire Marshal. There is also in the pamphlet a copy of the rules and regulations as promulgated by the State Fire Marshal and ex officio Liquefied Petroleum Gas Administrator for the handling of liquefied petroleum gases in Oklahoma.

"Strict adherence should be given to the law and to the rules in the use and handling of liquefied petroleum gas in every particular."

The pamphlet will contain 36 pages, will be 8 by 9 inches, and will be distributed to all who are engaged in the LP-Gas industry in Oklahoma, Mr. Ellis said.

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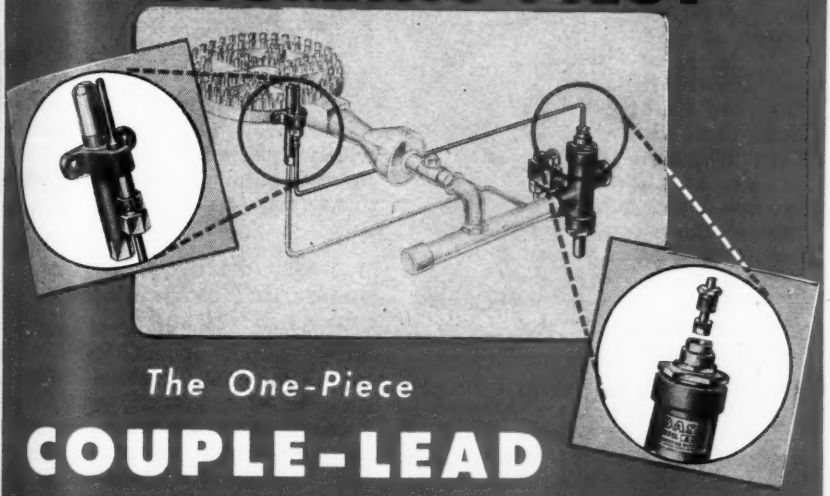


The One-Piece

COUPLE-LEAD

. . . flexible, yet rigid . . . FOR EASIER INSTALLATION

The *unique* design of the Baso Automatic Pilot's *couple-lead* not only makes for great flexibility and a wide range in application, Installation is simple and easy.

Made of dead-soft copper tubing, this couple-lead may be easily bent, coiled, or formed — to suit the installation exactly. At the same time it is remarkably rigid — retaining its form so that after being shaped as desired, it remains that way. Baso couple-leads are available in lengths up to 10 feet.

There's a valve model Baso for use with any fuel gas—on domestic water heaters, house heating units, floor furnaces, space heaters, unit heaters, and other gas burning appliances.

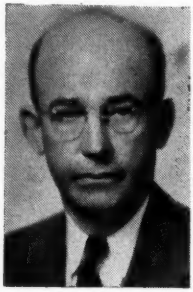
Switch-type models for control of main burner valves are also available.

A. G. A. and U. L. APPROVED
Patented

MILWAUKEE GAS SPECIALTY CO.
MILWAUKEE 3, WISCONSIN

M. H. Kotzebue Is Hanlon Award Winner for 1944

THE Hanlon Award, highest honor in the natural gasoline industry and one of the ranking merit awards in the pertoleum industry was conferred April 13 on M. H. Kotzebue, president, Gasoline Plant Construction Corp., Houston, Texas, at the Twenty - third Annual Convention of the Natural Gasoline Association of America at the Baker Hotel in Dallas, Texas.



M. H. KOTZEBUE

Mr. Kotzebue was the eighth recipient of the Hanlon Award which is conferred each year at this convention for outstanding meritorious service to the natural gasoline industry.

Presentation was made by James W. Vaiden, Skelly Oil Co., president of the Natural Gasoline Association. The citation read in part: " . . . There is little question within the industry but that this man was primarily responsible for the introduction and development of high pressure absorption at natural gasoline and cycling plants. His foresight and practical engineering judgment in the design and construction of such plants has made possible savings in production costs and the conservation of natural resources on a scale hitherto impossible by other means."

Mr. Kotzebue is a native of Texas where he received his B.S. in mechanical engineering from Texas A & M College. He was an officer flier during the first world war after which he went to Tulsa, Okla., as a designer of pressure vessels and gasoline plants. He has been active in the design and construction of gas processing plants in the Gulf Coast area. Mr. Kotzebue is a Fellow of the American Society of Mechanical Engineers and holds many patents for widely used process equipment in the natural gasoline and condensate industries.

New Gas Water Heater Standards Now Available

Approval requirements for gas water heaters adopted as American Standard by the American Standards Association on Feb. 23, 1944, are now available in printed form. This is the ninth edition of these requirements and replaces a mimeographed issue previously distributed to interested manufacturers. They are effective as of Jan. 1, 1944.

Principal changes in the construction features incorporated in this edition involve required compliance of various commonly used accessories with latest American Standard listing requirements for such devices. Gas valves, thermostats and temperature and pressure relief devices constitute outstanding examples.

Copies of these American Standards may be obtained from the American Gas Association Testing Laboratories, 1032 East 62nd St., Cleveland 14, Ohio. For additional information, inquiries should be addressed to R. M. Conner, Director, at the above address.

Passenger Cars Denied Butane In Amended L-86 Order

TIGHTER restrictions on the use of liquefied petroleum gas equipment, and a prohibition against the use of liquefied petroleum gas as a motor fuel in passenger automobiles, were announced April 7 by Deputy Petroleum Administrator Ralph K. Davies. Action was taken to meet a threatened shortage of liquefied petroleum gas.

Mr. Davies explained that available supplies of butane and propane —the type of liquefied petroleum gas commonly used by civilians— are now needed to meet increased military requirements as well as essential industrial, commercial, and civilian needs. Additional consumption, he said, would reduce the quantity of liquefied petroleum gas available to essential consumers.

The new restrictions are imposed by three measures:

(a) An amendment to Limitation Order L-86, issued by the War Production Board upon PAW recommendation.

(b) Issuance of two formal WPB directions (Directions 1 and 2) to the L-86 order; and,

(c) A revision of Form WPB-809 on which application is made for authority to install liquefied petroleum gas equipment.

The L-86 order formerly permitted installation of certain specified liquefied petroleum gas equipment without obtaining a specific exception to the order. As newly amended, however, Order L-86 no longer allows installation of such equipment for the following uses:

1. To burn liquefied petroleum gas in an internal combustion engine such as stationary engines or motor vehicles;

2. To connect an additional gas consuming appliance, such as a gas furnace or water heater, to existing liquefied petroleum gas systems already in use.

Direction No. 1 provides that tank manufacturers shall not deliver a liquefied petroleum gas tank unless the purchaser has submitted to the manufacturer the original authorization made by the WPB granting permission to install a tank. In addition, the purchaser must present the manufacturer with a purchase order certifying that the purchase is in conformity with current regulations.

Direction No. 2 prohibits the delivery of liquefied petroleum gas for the purpose of burning the gas as a motor fuel in passenger automobiles.

Applications for exceptions to the provisions of Order L-86 are made by filing a request on Form WPB-809, which has been revised. The revised form merely provides more complete information concerning the type of equipment to be installed and the kind and number

of appliances to be used with the equipment.

Applications for exceptions to the L-86 order are not accepted after April 8 unless made on the revised form.

It was pointed out that all applications for installation of equipment must bear a certification from the producers and transporters of liquefied petroleum gas that sufficient quantities of the gas and transportation facilities are available to meet the requirements of the new installation.

Where to Make Appeals

PAW's West Coast (District 5) Office will be delegated the authority to grant or deny exceptions to Order L-86 on all Form WPB-809 applications filed by persons who intend to install equipment in West Coast States. Applications from other sections of the country will continue to be handled by the Washington Office of the PAW.

It has been widely believed that assertedly illegal conversions made on numerous passenger cars of prominent Californians was the direct spur to PAW to restrict passenger car use of butane. While this may have hurried the issuance of the order, the change has reportedly been under consideration for some time and is said to have been influenced both by growing shortages of butane and the desire of the government's OPA to place automotive use of butane in the same category as gasoline so it could be more equitably controlled.

Directions 1 and 2 under Amended Order L-86, dated April 7, follow:

Direction 1

PLACEMENT OF ORDERS FOR LIQUEFIED PETROLEUM GAS TANKS WITH TANK MANUFACTURERS

"(a) *What this direction covers.* This direction establishes rules governing the placement of orders for liquefied petroleum gas tanks with tank manufacturers. This direction shall not apply to the placement of orders for portable compressed gas cylinders of the type commonly used for domestic or household installations.

"(b) *Original approval or authorization must be given to manufacturers.* Before certain installations or deliveries of liquefied petroleum gas tanks can be made it is required by Order L-86 that approval be requested by an application on Form WPB—809 revised (formerly PD-—397). If approval of any such application is granted on Form WPB—809 revised, Form GA—855, or other written authorization, the original authorization received from the War Production Board or the Petroleum Administration for War must be submitted to the manufacturer together with a purchase order certified in accordance with paragraph (e) of Order L—86. No tank manufacturer shall deliver and no person shall accept delivery of a tank unless the original authorization and a certified purchase order are both submitted to the tank manufacturer.

"After a purchase order is accepted by the tank manufacturer, he shall endorse on the original authorization his name and the number of tanks to be delivered on the basis of the authorization which has been sent to him. He must then return the endorsed authorization to the purchaser who has ordered the tank(s).

"(c) *Order must be placed with tank manufacturer within 60 days:* An approved Form WPB—809 revised, Form GA—855 or other authorization must be used to purchase liquefied petroleum gas tanks covered by it within 60 days of the date of approval. Unless the authorization is mailed by the applicant (purchaser) within that 60 day period, the approval shall be void and of no effect, and it will be necessary to reapply for the tanks covered by such application or other authorization."

Direction 2.

RESTRICTIONS ON THE DELIVERY OF LIQUEFIED PETROLEUM GAS

"(a) *Definitions.* (1) "Motor vehicle" means any rubber tired self-propelled conveyance, the motor power for which is furnished by an internal combustion engine designed for operation by motor fuel and which is built pri-

marily for the purpose of transporting persons or property.

"(2) 'Passenger automobile' means any motor vehicle, other than an ambulance, hearse, taxi cab or jitney, which is built primarily for the purpose of transporting persons on the highways and has a rated seating capacity of seven or less; and includes station wagons and suburban carryalls, irrespective of seating capacity, which are not available for hire or public rental.

"(3) 'Liquefied petroleum gas' means propane, propylene, butanes, butenes, or any combination or dilution thereof commonly known as liquefied petroleum gas.

"(b) *Restrictions on delivery of liquefied petroleum gas.* No persons may deliver or otherwise supply, and no person may accept delivery of, liquefied petroleum gas for use as motor fuel in a passenger automobile.

"(c) *Appeals.* Any person affected by this direction or any action taken hereunder who considers that compliance therewith would work an exceptional and unreasonable hardship upon him may appeal to the District Director in Charge, Petroleum Administration for War, 855 Subway Terminal Building, Los Angeles 13, California, or to the Petroleum Administration for War, Interior Building, Washington 25, D. C., whichever is appropriate, setting forth pertinent facts and reasons why he considers himself entitled to relief.

"Only those persons who reside or are affected in PAW District 5 by this direction shall appeal to the District Director in charge in Los Angeles."

In a release under date of April 5 from the Los Angeles office of the War Production Board these statements appear:

"In January and February, consumption of butane in California ran about 3,000,000 gallons above expectations, as a result of a variety of war drains. In addition to the expansion in production of high octane gasoline and synthetic rubber, there was unprecedented need for agricultural uses in operating pumps, brooders, sterilizers, and butane tractors. Thousands of farmers are planting their full acreage instead of allowing part of it to lie fallow. With heavy trucking also at peak volume, the problem of transporting enough butane to truck service stations throughout the state has become almost insurmountable.

"Conversion of passenger cars to butane not only would create serious new drains on the raw materials for synthetic rubber and aviation gasoline, but would further deplete the supply of ingredients which lend quick-starting qualities to passenger motoring fuel."

Gas Technology Institute's Program Restricted by War

The Institute of Gas Technology at Illinois Institute of Technology will devote its activities exclusively to research for the duration, it has been announced by John I. Yellott, director.

The educational program of the Gas Institute has been suspended, for recent selective service orders have ruled that graduate students in engineering and science are no longer eligible for deferments.

Graduate students are the only group who have studied at the Gas Institute. One of the purposes of the gas industry in establishing the Institute was to provide graduate training in gas technology.

Specifically, the objects of the publicity campaign are these:

1. To build up after-the-war demand for LP-Gas services and appliances.
2. To show the industry's important role in the war effort.
3. To assist all present industry activities, such as return of idle cylinders and equipment.
4. To strengthen the association.
5. To show America the true importance of the liquefied petroleum gas industry, its products and its services.

Mr. Selz will visit all sections of the country in the furtherance of the association campaign.

Round-Table Discussions Will Feature Midwest Meeting in Denver, June 5-6

MIDWESTERS will journey this year to the scenic, snow-capped mountains of Colorado to attend their annual convention on June 5-6. Mile-high Denver, cool even in summer, has been selected as the meeting place and local partizans have promised that all who go will be given a delightful taste of Western hospitality.

JOHN L. LOCKE

This convention, called by John L. Locke, Midwest chairman, has been designated as a wartime conference, and many of the current problems facing the industry will be covered by various speakers, among them probably someone from the Petroleum Administration for War out of Washington. In addition to such authoritative talks, there has been planned a new feature in the form of a round-table discussion in which independent bulk station distributors will exchange their ideas and express opinions out of their experiences. Various subjects of general interest will be assigned to several prominent men who will act as discussion leaders.

For the first time in a long while, equipment exhibits will be sponsored. But limited booth space is available and those who are interested should communicate at once with L. D. Turner, Eaton Metal Products Co., 4800 York St., Denver. The booths will be 8 x 10 ft. in size and reservations will be made in the order received.

The arrangements and program committee consists of F. N. Mabee, Colorado Natural Gas and Fuel Co., 301 Continental Oil Bldg., L. D. Turner and Robert Husted, Denver Propane Co., 1641 Blake St., but the program details are not yet ready for announcement.

The meeting will be held at the Cosmopolitan Hotel and excellent accommodations are assured for everyone. It is important, however, that reservations be made well in advance. These can be sent to Mr. Mabee or to Manager Herndon, of the Cosmopolitan Hotel. J. Harry Custance, of the Denver Convention and Tourist Bureau, promises that those inclined will have ample opportunity to visit places of scenic and historic interest in and around Denver.

PAW Form 35 Eliminated From Petroleum Order P-98-b

Handling of delivery orders for controlled materials required by petroleum producers will be expedited by the elimination of PAW Form 35 from the provisions of Preference Rating Order P-98-b, the Petroleum Administration for War announced March 18.

No approval is required on controlled materials delivery orders costing less than $2500 and having no single item costing more than $500. P-98-b assigns allotment symbol P-1 for use on these delivery orders.

FOR A BIGGER POST-WAR GAS LOAD...

Stop awhile and visit!..

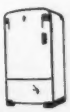
Few people can resist a neighborly chat. And a gas delivery is a good opportunity for a neighborly visit and a talk about your customers' post-war plans.

In this way you can easily make the extended use of L-P gas a part of your customers' post-war plans. Start by telling them of the new L-P gas appliances that will be available after the war—appliances like the new and improved L-P gas refrigerator. You can point out the many conveniences L-P gas refrigeration will bring them. Tell them of trouble-free operation . . . the lasting silence of an L-P gas refrigerator . . . about the only automatic refrigerator with no moving parts in its freezing system. First thing you know, you'll have your customers putting a new L-P gas refrigerator at the top of their post-war list.

"SATISFIED CUSTOMERS TODAY MEAN ... MORE PROSPECTS TOMORROW"

SERVEL, Inc.

PEACETIME MAKER OF THE SERVEL GAS REFRIGERATOR



NGAA Discusses Technical Problems

TECHNICAL problems which have grown out of enlarged production demands in connection with the war formed the principal discussion of speakers before the 23rd annual convention of the Natural Gasoline Association of America at its Dallas, Texas, meeting April 12-14.

JAS. W. VAIDEN

Election of officers for the new year, the presentation of the Hanlon Award to M. H. Kotzebue (see Page 40), and the "Information Please" form of informal discussion of industry affairs on the last day vied with the importance of the papers for member interest. LP-Gas men were particularly attracted by a paper on the future supply of liquefied petroleum gas, the combined opinion of several of the major producers, and presented by G. L. Brennan, Warren Petroleum Corp. (See Page 30.)

The entire panel of officers which has served during the past year was re-elected to office. These are James W. Vaiden, Skelly Oil Co., president; and the following vice presidents: H. H. Beeson, Sabine Valley Gasoline Co., Inc.; H. A. Ells, Cities Service Oil Co., and R. A. Carter, Continental Oil Co. William F. Lowe will again serve as secretary-treasurer.

The spirit of today—economy of time and conversation of effort—was symbolized by a large amount of valuable information that was disseminated in the limited three-day program. President James W. Vaiden opened the convention with this in mind when he stated, "The program committee has restricted the discussions to subjects that will be of greatest help to the industry as a whole. They have realized how busy you are with production problems and how strained your organizations are to keep up your operations and further the war effort."

Speakers and their subjects, in addition to Mr. Brennan's presentation of the paper on butane supply, were: "Why and Where to Build a Natural Gasoline Plant," by Frank Matheny; Infra Red Spectrograph Analysis of Natural Gas Hydrocarbons," by H. Cary; "Centrifugal Compressors and Their Applications in Natural Gas and Natural Gasoline Operations," by E. O. Bennett; "Catalytic Cracking, Asset or Menace to Natural Gasoline Operations," by D. P. Barnard; "Utilization of Condensate Pools," by Roy L. Benoit; "Operating Economies of Unitization," by Jack Flaitz; "Condensate Gas Sampling," by Dr. G. G. Brown and Dr. D. L. Katz. An address upon current problems in the industry was given by James E. Pew, director, Natural Gas and Natural Gasoline Division, Petroleum Administration for War.

Fred A. Werbe Is Named Kansas Fire Marshal

Fred A. Werbe has been appointed state fire marshal for Kansas. Walter McClanahan is chief deputy.

Mr. Werbe takes the place of Clyde Latchem, who has been commissioned a major in the army and is now stationed at Camp Crowder.

VAPORIZATION

At Various Temperatures of Liquefied Petroleum Gases When Stored Aboveground In Given Size Tanks

Butane-Propane News,
Los Angeles, California,

Gentlemen:

"With the advent of the war, we were called upon to install large storage, from 1000 to 5000 gals., in several war industries in the Northwest.

STEWART MATTHEWS

"Large appliance demand on customer storage, coupled with cold, dry weather, or excessive humidity, and a shortage of steel for tanks, created a vaporization problem for us. Revaporizers were not always practical or permissible for us to use.

"We took our problem to William C. Brown, consultant of the Technical Advisory Service, of the Small War Plants Corp. The enclosed report gave us the necessary help and formulas so that our storage could be accurately sized to the job, with the minimum amount of storage and expense.

"The report was so helpful to us that we thought that it should be made available for others in the LP-Gas industry. We therefore asked permission and received it, to forward the report to you for reprinting in part or in toto, as you see fit.

"Yours very truly,
"STEWART MATTHEWS."

The accompanying letter from Stewart Matthews, Northern Gas Co., Seattle, shows what one resourceful dealer did to solve an acute operating problem, and affords ample explanation for the questions and answers that follow. We must add, however, that, in order to get a cross section of expert industry opinion upon the technicalities of vaporization, the Technical Advisory Seervice of the Small War Plants Corp., petitioned the U. S. Bureau of Mines. Phillips Petroleum Co., and several other authoritative sources for data that would apply not only to the specific problem at hand but to similar cases in general and thereby would be an industry guide to future installations. The answers were submitted, in turn, to Mr. Matthews, and the article herewith covers one of those replies, that of George R. Benz, of the Phillips Petroleum Co. —Editor.

"WE operate a liquefied petroleum gas distribution and storage tank service and supply defense industries with butane and propane gas throughout the Puget Sound defense area. We also supply storage containers for these gases as a special service to our customers.

"Each time we are called upon to install a liquefied petroleum gas storage tank, we are confronted with a problem concerning the required storage tank capacity necessary to vaporize given quantities of propane liquefied petroleum gas (C_3H_8) at various degrees of F. temperature. We would, therefore, appreciate your assistance in ob-

taining information on the following:

QUESTIONS

"1. What, stated in gallons or pounds per hour, will a 1000-gal. water capacity, 200-lb. working pressure, aboveground storage tank vaporize at temperature ranges of 60°, 50°, 40°, 30°, 20°, 10°, 0° F. when filled with propane to the legal maximum allowance of 83%?

"2. To what extent will the ratio of vaporization be affected when the same storage tank is filled with the same fuel to 50% and 25% of maximum water capacity?

"3. What effect, if any, does shape and side-wall thickness of metal have on the rate of vaporization?

"4. Will the rate of vaporization in other size tanks of like shape and metal thickness be in the same proportion as the Q.E.D. of the 1000-gal. capacity tank?

"5. If possible, we would like the same information on straight butane liquefied petroleum gas (C_4H_{10}), at temperature ranges of 60°, 50°, and 40° F.

"Proper solution to this problem will be of great significance to many distributors other than ourselves."

ANSWERS

Geo. R. Benz, assistant manager, Chemical Products Department, Phillips Petroleum Co., Bartlesville, Okla., states:

Many variables influence the vaporization capacity of an aboveground LP-Gas container, such as:

1. Atmospheric temperature.

2. Wetted surface of container —varies as contents are depleted.

3. Sunlight and shade.

4. Reflective capacity of surface of container—paint condition and thickness.

5. Humidity.

6. Whether load is steady or intermittent.

7. Whether container is shielded or exposed to wind currents. Velocity of wind if tank is not shielded. This is a very important factor.

Because of these variables, the value of much of the experimental data that have been obtained is questionable, as the various factors affecting the results were not given due consideration.

One Approach to Problem

One approach to the problem is to establish what are considered to be the most unfavorable conditions and establish vaporizing capacities for them. When this is done, one is immediately confronted with an installation that does substantially better than the data indicate it should. If one engineers all his installations on the "worst condition" basis, he may find a number of them with excess capacity, enough excess to approach the uneconomical.

Attached are Tables 1 and 2 giving performance of several installations for which only one or two of the above variables were known. They give an indication of what may be expected of two sizes of tanks. Since so little is known about so many of the variables that influence the capacity of these installations, no generalization on them is possible. In fact, in Table I, the capacity in the

Men on a Mission...

U. S. SIGNAL CORPS PHOTO

The mission is . . . *crushing defeat of the Axis.* And every move we make at PAYNEHEAT is designed to hasten that end. But after Victory, we'll offer . . .

Payne ZONE-CONDITIONING

Post-war successor to the central furnace. Economical gas heating and fresh air circulation . . . *controlled by zones or individual rooms.* ★ Not available now. More important to back those *men on a mission* in every way we can. Buying more War Bonds is one way!

PAYNEHEAT

GAS FUEL HAS EVERYTHING

NEARLY 30 YEARS OF LEADERSHIP

Payne FURNACE & SUPPLY CO., INC., BEVERLY HILLS, CALIFORNIA

TABLE 1. VAPORIZING PROPANE
4000-gallon Propane Capacity Tanks
(200 psi. WP ASME Code)

Installation Number	*Location*	*Average Number Gallons Used* *Month*	*Day (25 day month)*	*Remarks*
Aboveground				
1	Philadelphia	2,500	100	
2	Philadelphia	6,000	240	
3	Philadelphia	2,000	80	
4	Philadelphia	10,000	400	
4	Philadelphia	10,000	400	Note 1
5	Philadelphia	20,000	800	Note 1
6	Philadelphia	7,000	280	Note 2
7	Philadelphia	7,500	300	
8	Philadelphia	4,000	160	
Underground				
9	Philadelphia	1,800	72	
10	Philadelphia	10,000	400	Note 3

Note 1: Low pressure trouble corrected by installation of additional storage and/or vaporizers.

Note 2: Low pressure in winter only necessitated installation of vaporizer to remedy.

Note 3: Low pressure year around necessitated installation of vaporizer to remedy.

"day" column may be in error since it was calculated.

For comparable information on smaller containers, you will find the article on page 44 of the October, 1941, issue of BUTANE-PROPANE *News* of interest. Please note that the author's tests of rate of transfer of heat through cylinder walls are based on what he terms "the most unfavorable circumstances", i.e., still air at night, so he thereby eliminates many of the variables mentioned above. In our estimation, the data in Table 13 of the article are reasonably on the safe side.

In the above-mentioned article, the author arrives at a figure for heat absorption of the propane of 2 Btu. per sq. ft. of absorptive surface per deg. F. temperature differential. From work we have done, this figure is reasonable. No similar data are available on storage tanks.

Having the above remarks in mind we will approach your questions.

1. See attached Table 3.
2. See attached Table 3.
3. The influence of shape is that, the more surface for a given capacity, the greater vaporization capacity the tank will have. As applied to liquefied petroleum gas tanks this means the greater the ratio of length of diameter, the better vaporization capacity.

Heat transmission through solids varies inversely as the thickness.

TABLE 2. VAPORIZING PROPANE
1200-gallon Propane Capacity Aboveground Tanks
(200 psi WP ASME Code)

Installation Number	*Location*	*Average Number Gallons Used* Day	Hour (24 hour day)	*Remarks*
a	East Coast Area	200	8.5	Note 4
b	Detroit Area		28	

Note 4: On one day, air temperature was 31° F. and during 1 hour the withdrawal was double the hourly average. No indication that capacity had been reached.

Thus, the thicker the walls of the container, the less propane vaporized under a given set of conditions. This is another reason why, in order to obtain maximum vaporizing capacity, the diameter of a container should be kept down so that shell thickness can be kept to a minimum.

4. We would not expect the vaporization capacity of a container to increase in direct relation to the net propane capacity. Capacity varies in part as the square of the diameter, while surface is influenced only by the first power of the diameter. No experimental data are available to show just what the

TABLE 3. VAPORIZING CAPACITY
1000-gallon Capacity Aboveground Propane Tank
(Calculated)*

Air Temp. (°F.)	*Propane Vaporized Per Hour When Tank Filled To:* 100% C_3 Capacity Lbs. Hr.	Gal. Hr.	50% C_3 Capacity Lbs. Hr.	Gal. Hr.	25% C_3 Capacity Lbs. Hr.	Gal. Hr.
60	133	31	83	20	67	16
50	118	28	74	17	59	14
40	104	25	65	15	52	12
30	90	21	56	13	45	11
20	76	18	48	11	38	9
10	63	15	39	9	32	7
0	51	12	32	7	25	6

* Basing the calculation on the following assumptions:
(a) Container exposed to still air at night.
(b) Container does not become coated with frost.
(c) Product is Commercial Propane.
(d) Steady load.
(e) Container unpainted.
(f) Heat absorbed through container walls = 2BT.U./Sq. Ft. wetted surface/°F Differenetial between atmosphere and propane @ —44° F.

relationship is between size and capacity.

5. In answer to this question we will simply say that the latent heat of vaporization of butane is only slightly higher than for propane, but for butane the temperature differential will be substantially less. For normal butane, vaporization capacity would be nil at about 35° F., and very approximately one-fourth that of propane at the higher temperatures. Due to the many variables experimental data within the industry are very meager."

LPGA Names New Executive Board

THE MEMBERS of the Liquefied Petroleum Gas Association have elected the executive board for 1944. Membership shows representation from Coast to Coast and from Minnesota to the Gulf.

The 16 new directors are: L. Abramson, Jr., Petrolane Gas Corp.; G. W. Bach, Skelly Oil Co.; R. S. Bowers, Standard Oil Co. of Calif.; F. B. Boice, Shell Oil Co., Inc.; G. L. Brennan, Warren Petroleum Corp.; G. A. Burrell, Atlantic States Gas Co.; W. T. Joplin, Butane Corp.; K. H. Koach, Green's Fuel, Inc.; J. Woodward Martin, Lone Star Gas Co.; Herman Merker, Pressed Steel Tank Co.; Walter H. Miller, Hamler Boiler & Tank Co.; Ellsworth L. Mills, The Bastian-Blessing Co.; W. A. Naumer, Carbide & Carbon Chemicals Corp.; K. W. Rugh, Phillips Petroleum Co.; E. Carl Sorby, George D. Roper Corp.; H. K. Strickler, The Protane Corp.

In addition to the sixteen directors listed above the following eight directors will hold office for the year 1944 in accord with the recent amendment of the by-laws: C. M. Ambrose, Liquefied Gas Corp.; P. A. Anderson, Utilities Distributors, Inc.; W. S. Christopher, Georgia Automatic Gas Co.; R. E. Forsberg, Country Homes Gas Service, Inc.; J. L. Locke, Northwestern Blaugas Co.; H. C. Pittman, Automatic Gas Co., Inc.; L. C. Roney, L. C. Roney, Inc., and J. Richard Verkamp, The Verkamp Corp.

Motor Freight Bureau Proposes Rate Increase

The Liquefied Petroleum Gas Association has notified the industry of the following proposals of the Middlewest Motor Freight Bureau, Inc., 116 East Ninth Street, Kansas City, 6 Mo.:

Proposal 2608—Shipping containers, returned, as described in Item 2495-B, Middlewest Tariff 1025. It is proposed to increase present Class 27½ rating, any quantity, to Class 55. Proposal 2610—Cylinders, steel, returned, as described in Item 2520-B, Middlewest Tariff 1025. It is proposed to cancel present basis of Class 27½, any quantity, and allow classification basis to apply which will be class 55.

The Association suggests that those interested get in touch with the above bureau, and oppose the drastic increases proposed.

Plumber Prepares for Postwar Trade In LP-Gas Field

F. E. Fischer, of the Fischer Plumbing and Heating Co., Perry, Okla., has applied to T. J. Ellis, state fire marshal, for a liquefied petroleum gas dealer's and installer's license.

The Fischer firm expects to start in the LP-Gas field by stocking hot water heaters and branch out when equipment is available by adding LP-Gas merchandise to his present stock of plumbing supplies.

CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry.

Four Ways to Longer Service from Heat Exchangers — P. S. Otten. "Chemical Industries," Jan., 1944, pp. 50-53. Despite the large number of heat exchangers now in service, there is relatively little information available on proper maintenance of this type of apparatus. It is the purpose of this article to present a few recommendations for the installation and care of heat exchangers which, if followed, will materially lengthen effective service life. Reduced to fundamentals, successful solution of the problem of obtaining best performance and longest life from heat transfer equipment rests on fulfillment of the following four requirements: 1. Correct thermal and physical design; 2. Proper installation; 3. Operation in accordance with design conditions; 4. Proper maintenance.

Mobilized Research — C. B. Veal. "National Petroleum News," Feb. 2, 1944, pp. R-82, 84, 86. The unusual conditions which the standard types of automotive fuels and lubricants have been called upon to withstand in military service, and the entirely new uses to which petroleum products have been adapted to meet wartime needs, are shown in an outline of the test and research work being carried on by the Coordinating Research Council, Inc. The tests are also indicative of the wide and varied requirements which automotive petroleum products will be called upon to meet after the war. The Co-ordinating Research Council, sponsored by the S.A.E. and the A.P.I., is a body of 12 technologists which directs the activities of some 150 technical groups in the solution of problems of fuels, lubricants and equipment common to both the automotive and petroleum industries. All its test work at present is concentrated on wartime projects.

Cooling-System Maintenance. "Society of Automotive Engineers Journal," Feb., 1944, pp. 29-37. Part 2 and last of the report of the subcommittee on Cooling-System Maintenance of the SAE Maintenance Methods Coordinating Committee of the SAE Transportation and Maintenance Activity prepared for the Office of Defense Transportation. Part 1 in January issue, 1944.

Planning Gas Compressor Stations for Long-Range Efficiency—B. Thiel. "National Petroleum News," Feb. 2, 1944, pp. R-87, 88, 90, 92. The increasing use of refinery gases and gas derivatives in the manufacture of petroleum products, the recovery of light compounds in natural gasoline plants and the growth of recycling operations in oil fields point to additional gas compressor stations in the future, despite the large number of wartime compressor installations. Factors to be considered in designing stations for long-range efficiency, stability and economy are outlined as a basis for meeting the particular problems of the individual installation.

Fuel-Injection Phenomena Explored by Stroboscopic Studies—P. H. Schweitzer. "Diesel Power," Feb., 1944, pp. 150-152. Injection testing is

ENSIGN BUTANE-PROPANE CARBURETORS ARE *Backing the Attack!*

ENSIGN Butane-Propane Carburetion Equipment, at work for our armed forces, is playing an important part in the grim fight for Victory. Supplying this equipment is ENSIGN'S major task for the duration.

But there is a home front which is "backing the attack" — and here, too, ENSIGN Butane-Propane Carburetion Equipment is helping in the vital work of supplying food, transportation, oil and many other necessiti

The amount of ENSIGN Butane-Propane Carbu tion Equipment available for non-military work necessarily limited, but replacement parts can furnished without delay.

For the BEST in Butane-Propane Carburetion— sist on ENSIGN.

Before ordering ENSIGN Bu Propane Carburetion Equipme Parts, read W. P. B. General itation. Order L-86. Copies be obtained from your n W. P. B. office.

ENSIGN CARBURETOR CO., Ltd

HUNTINGTON PARK • CALIFORNIA

largely performed on the engine itself, but this is a wasteful practice because at least 75% of the relevant information can be obtained quicker, cheaper and more accurately at the bench. A surprising amount of data can be secured by observations in an inexpensive stroboscopic spray chamber. Such a chamber, the one in use in the diesel laboratory of the Pennsylvania State College, is shown schematically and in a photograph. Operation of the aparatus and discussion of results are included.

Table of Common Hazardous Chemicals—N.F.P.A. Committee on Hazardous Chemicals and Explosives in cooperation with American Chemical Society. New and revised seventh edition. Most authoritative information available including several chemicals not previously in general commercial use, but now used in war industries. Deals with hazardous chemicals with respect to fire hazard, life hazard, recommended storage, proper methods of fire fighting, recommendations of suitable extinguishing agents. "Flash point," "explosive range" and "ignition temperatures" given where such information is essential. Published by National Fire Protection Association, 60 Batterymarch St., Boston 10, Mass. Price 30c.

Measuring the Flow of Fluids—W. Goodman. "Heating, Piping and Air Conditioning." Jan., 1944, pp. 8-10. Article 6. Author discusses the construction of a U-tube manometer and its proper application.

Oil Shale a Source of Petroleum Products. "California Oil World," 2nd Jan. issue, 1944, pp. 7, etc. This article reviews a few facts about American oil shale as a source of petroleum products. The following are some of the topics briefly discussed: What is oil shale? physical composition of oil shale; chemical nature of the "oily" part of shale; location of U. S. oil shales; Rocky Mountain oil shales; recovery of oil from shale; the shale retort; refining shale oil; refining problems.

Simplified Petroleum Chemistry and Physics as Applied to Lubricants and Fuels. Published 1943 by the Petroleum Educational Institute, Los Angeles. This book was compiled with the intention of acquainting non-technical individuals with the fundamentals of chemistry and physics as applied to the refining of petroleum. The subject matter is picturized and explained without the mention of chemical symbols and formulas, and a number of the phenomena of hydrocarbon physics and chemistry are compared with similar situations in every-day life with which the layman is familiar. A table of the chemical structures of the various compounds mentioned in the text is appended.

Abstracts of Chemical Patents vested in The Alien Property Custodian. Prepared by Chicago Section of American Chemical Society, Classified and Indexed by Science-Technology Group of The Special Libraries Association. A book of 7000 foreign-owned U. S. chemical patents, seized by the Alien Property Custodian and offered as a convenience to chemists and business men. Intended to save time and money, and also as a means of furnishing necessary technical information to amplify material in Custodian's patent catalog. Edited and published by the Office of Alien Property Custodian. Price, $1 per section; $25 for complete set (33 volumes). Address all inquiries to: Office of Alien Property Custodian, Chicago, Ill.

Butane Company Declared Utility

HOLDING that a company which sells butane gas to more than 1000 customers in the Mobile, Ala., area was a "public utility," the Alabama Public Service Commission on March 29 at Montgomery ordered Green's Fuel, Inc., of Sarasota, Fla., to apply for a certificate to do business under state laws, or cease operations.

The commission's order is the outgrowth of proceedings that started in February (see BUTANE-PROPANE *News*, April, 1944 issue, page 52) when Green's Fuel, Inc., was directed to show cause why it should not be considered in the same category as a public utility and to obtain a certificate of public convenience and necessity to operate.

The case has been regarded as a test of the commission's authority over LP-Gas distributors and Commissioner Gordon Persons predicted the litigation would be carried into the courts.

Company Serves 1008 Consumers

The company serves a total of 1008 residences in the communities of Westlawn and Country Club Village outside the Mobile city limits. Its officials and attorneys contended at the hearing that the operations were not similar to those of other "gas" companies regulated by the commission, since its products were sold in liquid form and its pipelines did not cross a public highway.

It also contended the product was sold under contract with operators of the housing projects comprising the communities.

The commission's order said, however, that the company's business was conducted directly with occupants of each housing unit, the latter receiving bills based on meter registration.

While the order was directed to the Florida concern, Mr. Persons said the final outcome might affect operations of 15 companies now selling butane gas in Alabama, in or around Birmingham, Montgomery, Decatur, Greenville, Selma and other cities.

BULK PLANT DIRECTORY

The business office of BUTANE-PROPANE *News* is currently preparing a directory of liquefied petroleum gas dealers and distributors who have bulk plant facilities throughout the country.

The purpose of this directory is to furnish a much needed record of the plants that form the backbone of the liquefied petroleum gas distributing system.

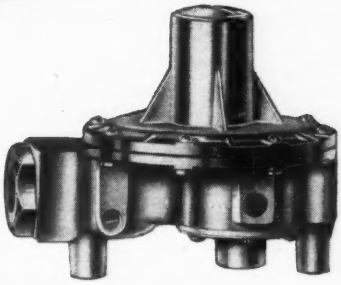
This directory is being prepared on a geographical basis listing bulk plants by cities and giving, so far as is possible, their capacities, method of distribution, whether engaged exclusively in wholesale operations or also offering a retail service.

If your company has bulk plant facilities and you have not already sent the BUTANE-PROPANE *News* the pertinent facts about this part of your business, it is suggested that in the interest of accurate information, you do so at once. Your cooperation will be appreciated.

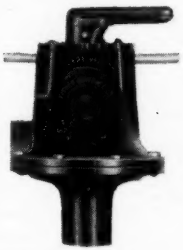
FISHER L.P.G. REGULATORS

STILL AVAILABLE FOR PROMPT DELIVERY

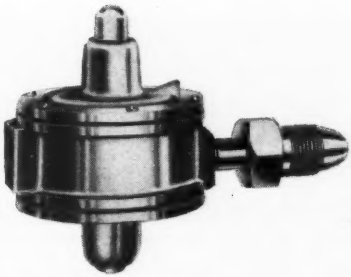
Fisher LPG regulators and regulator assemblies, Types 721, 713 and 941 are still available in reasonably adequate quantities. Materials and construction of these regulators are standard pre-war specifications. Prompt delivery can be made with AA5 or better priority under the provisions of General Limitations Order L-86.



★ **TYPE 721** with wide assortment of inlet and outlet connections and with various pigtail and manifold assemblies for either single or two drum service. Capacity up to 120 cu. ft. per hour, or more — setting 11" W.C. at 30 cu. ft. per hour 100 lbs. inlet. Relief Valve built-in and set for 1 lb. and sealed.



★ **TYPE 941** "All-in-one" Regulator for two drum manual throw-over control. All regulator high pressure connections and possible points of leakage eliminated. Extremely compact — all parts incorporated in one unit — installation and operation greatly simplified. Capacity up to 100 cu. ft. per hour or more — setting 11" W.C. at 30 cu. ft. per hour 100 lb. inlet. Inlets silver soldered to pigtails and fitted in body. Outlet ⅜" or ½" female pipe thread. Relief Valve built integral with body.



★ **TYPE 713** for medium volume one drum requirements. Low in price yet insures accurate and dependable regulation. Can be supplied with various types of inlet adaptors — outlet connection is ⅜" pipe thread. Attaches directly to cylinder valve. Capacity 25 cu. ft. per hour — setting 11" W.C. at 5 cu. ft. per hour 100 lbs. inlet. Incorporates built-in relief valve.

• When conditions warrant Fisher Governor Company will be ready with a new complete line of LPG equipment including Cylinder Valves, Accessories for Bulk Plants, Industrial and Utility Plants and Tank Trucks — Regulators and Regulator assemblies — Self Service Equipment. Include Fisher LPG Control Equipment in your post war planning.

FISHER GOVERNOR COMPANY, 960 Fisher Bldg. **MARSHALLTOWN, IOWA**

Now $15,000,000 Refinery Will Employ 400 Skilled Workers

The new $15,000,000 Associated aviation gasoline refinery of Duncan, Okla. was nearing completion in April.

Eight large independent refiners formed the Associated Refineries Inc. They will act as lessee and operators under a government contract.

Fourteen hundred workers have been employed at the peak of production in carrying out the contract to build the plant, located on an 84-acre tract five miles south of Duncan. There will be 400 skilled refinery workers at the start.

Newest equipment has been installed for the manufacture of 100-octane gasoline such as is required in wartime aviation. The catalytic unit of the plant is 200 ft. high and equipped with an automatic elevator. Several large towers, one of them 145 ft. high and 15½ feet in diameter, have been constructed. A boiler house, 110 ft. long by 60 ft. in diameter, serves the entire plant. Water is secured from nearby Lake Duncan, serviced through a new 12-in. water main.

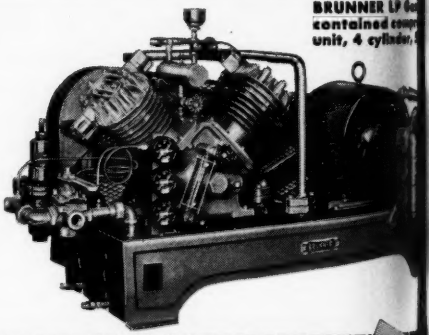
L. F. Page, AGA Laboratories, Joins U. S. Army

Louis F. Page, who joined the AGA Testing Laboratories war products department following his graduation from Tri-State College in 1942 as a mechanical engineer, entered the army during March.

The latest member of their staff to enter the armed forces, Mr. Page represents the 50th Laboratories' employee now in our country's service.

DON'T LOSE VITAL LP GAS VAPORS
when unloading tank cars

Many LP Gas operators are losing 500 to 1000 lbs. of liquid petroleum gas because they don't salvage the vapor left in tank cars after unloading. But they are paying for this lost poundage and its transportation! You can salvage this residue vapor by using the Brunner LP Gas Unit. This saving alone will quickly pay for the unit. In addition, the Brunner unit will reduce the time for tank car unloading. The Brunner LP Gas Unit for gas transfer and recovery is outstanding in speed, efficiency, safety and low costs. Brunner Manufacturing Co., Utica, N. Y., U. S. A.



BRUNNER LP Gas contained compressor unit, 4 cylinder, 2

ARMY E NAVY BRUNNER

For over 36 years the Symbol of Quality

WRITE FOR THIS NEW FREE BOOKLET

It describes the Brunner LP Gas Unit and contains more illustrations, diagrams, tables and valuable information on the handling of LP Gas than any booklet ever issued.

Help for Truck Operators By Registering Vehicles

ODT has issued administrative order No. 10, designed to help over-the-road truck operators utilize their equipment fully by registering freight and empty or partly loaded vehicles with ODT district offices.

The order, issued in Washington, became effective March 27.

Pittsburgh Field Men Meet at Home Office

The Pittsburgh Equitable Meter Co. recently held its annual meeting for the eastern representatives at the general offices of the firm in Pittsburgh, Pa.

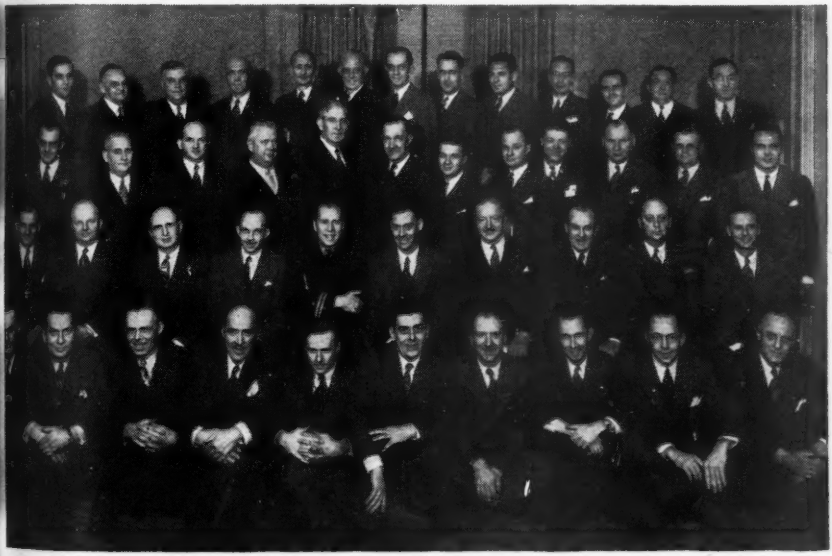
Called in from their territories by Colonel W. F. Rockwell, president, the district managers and service engineers from Atlanta, Columbia, Brooklyn, Buffalo, New York, Pittsburgh and Boston offices, met with company executives for a discussion of problems relating to field operations.

The engineering staff of the firm conducted a series of meetings for the review of the company's products. Postwar plans and markets were also covered in the four-day session.

WPB Lifts Restrictions On Steel Weight for Stoves

In an amended L-23-c order, issued March 24, WPB removed restrictions limiting the weight of iron and steel permitted in domestic cooking appliances and domestic heating stoves.

Also removed are restrictions prohibiting the use of alloy steel in those products.



Eastern representatives of the Pittsburgh Equitable Meter Co. who attended a recent meeting in Pittsburgh to discuss problems of field operations.

FUEL INJECTOR

• **ANNUALLY since 1936, conventions of the Natural Gasoline Association of America have devoted one portion of every program to the exhibition and discussion of original operating ideas which have been developed by members for doing any job within their province in a cheaper, safer or more efficient way. Cash prizes are awarded for "kinks" judged the best.**

One of the prize winners in the past was B. F. Gilstrap, Chief Engineer J. E. Crosbie, Inc., Pant No. 7, Fittstown, Okla. His entry was a "fuel injector," which is described in the accompanying article.—Editor.

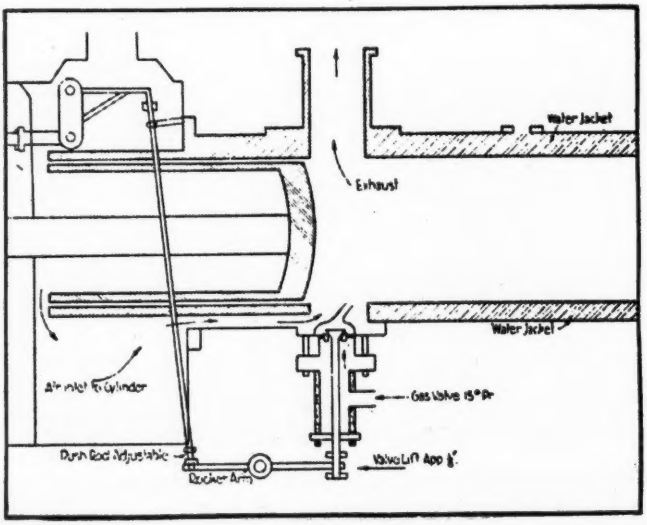
•

THIS fuel injector provides for the injection of fuel through air intake ports. Expansion and contraction of the cylinder does not change adjustments, even though expansion and contraction may be as much as one-quarter inch. The injector has been designed for Type 10 G.M.A. or G.M.B. Bessemer 2-cycle gas engine with 17-inch inverted cylinders. Fuel pressure required is 13 to 15 pounds. Fuel valves are not in direct contact with fire and no water circulation is needed around them. It has been found that valves can operate over a longer period without grinding. Air and gas are injected into the bottom of the cylinder forcing all burned gases out at the top of the exhaust. The fuel valve begins to open when the piston clears the ports three-eighths inch on the forward stroke and closes at the same position on the backward stroke. This valve does not get out of adjustment.

PAW Wirt Franklin Resigns As Field Assistant

The resignation of Wirt Franklin as special field assistant to Deputy Petroleum Administrator Ralph K. Davies was recently announced by the Petroleum Adimnistration for War.

Mr. Franklin joined the PAW in August of 1941.



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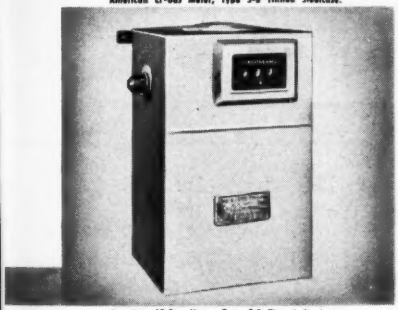
FUEL INJECTOR FOR AIR INTAKE PORTS

▼

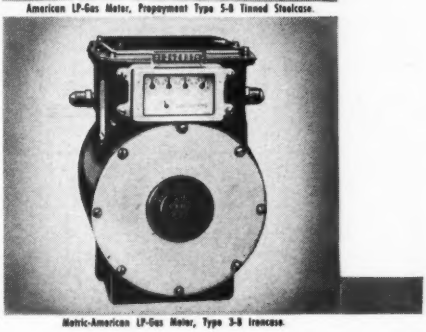
Checked by the record of thousands in service

American LP-Gas Meter, Type 5-B Tinned Steelcase.

American LP-Gas Meter, Prepayment Type 5-B Tinned Steelcase.



American LP-Gas Meter, Type 2-B Tinned Steelcase.



Metric-American LP-Gas Meter, Type 3-B Ironcase.

THE preference of leading LP-Gas distributors for American Meter Company meters is fortified by substantial reasons . . .

▶ A complete line of effective instruments for metering and controlling butane-propane vapors. ▶ American Meter Company experience and manufacturing responsibility give valid weight to its recommendations on the correct application of LP-Gas Meters and Regulators. For 105 years, the manufacturers have successfully anticipated the needs of the Gas industries.

✱ NEW CATALOG LPG-4 gives valuable data on LP-Gas metering with instruments scientifically suited to the purpose. If you have not received your copy, please write.

GENERAL OFFICES • 60 EAST 42ND STREET, NEW YORK, N. Y

AMERICAN METER COMPANY

INCORPORATED (ESTABLISHED 1836)

A-1605

New Ceiling Prices on Used Gas Ranges Set by OPA

Starting April 17, all sales of used gas ranges became subject to newly set retail ceiling prices. This is in accordance with Maximum Price Regulation No. 527 — used domestic gas cooking ranges, dated April 13.

These new ceiling prices cover sales to a consumer of used domestic gas cooking ranges by any person to another person, including sales by a consumer who is selling his own range; and sales by dealers and auctioneers.

They also provide that no existing contract of any type or other obligation will make legal any sales of above the ceiling.

The seller of a used gas range, even though an individual consumer, may not offer a stove for sale without attaching a tag which states whether the stove is sold "reconditioned" or "as is", and dealers' tags must show as a separate item whatever installation charge may be included.

Everyone who sells a used gas range must also give the buyer a receipt which states the names and addresses of buyer and seller, the date of sale, the type of stove, whether it is sold "reconditioned" or "as is" and the nature of any other charges; and must retain a copy to be shown to OPA if any recheck is ever necessary.

The prices which constitute legal ceiling prices to the consumer for the various type of used gas ranges extend from $6.25 to $63.50.

Dealers In West May Double Gas Heater Inventories

Dealers in the Far West have been given an increase in their allowable inventories of oil and gas heaters, effective March 25, OPA rules.

The increase amounts to 100%.

PRODUCTION AND DISTRIBUTION OF LP-GASES* IN UNITED STATES

(Thousands of Gallons)

	Jan. 1944	*Dec. 1943*	*Jan. 1943*
Production:			
Isobutane at natural gasoline and cycle plants	17,892	18,186	12,054
Other LP-Gases at natural gasoline and cycle plants	75,894	73,752	72,534
Stocks—End of Month:			
Liquefied petroleum gases	41,622	45,024	22,848
Demand:			
Used at refineries:			
Liquefied pertoleum gases and benzol	44,688	41,412	32,424
Liquefied petroleum gases for fuel	43,554	41,202	34,608
TOTAL	88,242	82,614	67,032

* Liquefied refinery gases not included. Extracted from Jan., 1944, natural gasoline report of U. S. Bureau of Mines.

MASS PRODUCTION *and* NEW IMPROVED WELDING METHODS

BUTANE TANKS and SYSTEMS

Our 30 years' experience as fabricators of sheet and plate steel, our modernly equipped plant, plus mass production and new, improved welding methods—these enable us to meet wartime demands for Butane Tanks and Systems, and other fabrications, will enable us to serve our customers with maximum speed and efficiency after the war is over.

TBMCo

TEXAS BOILER & MACHINERY CO.

Sheet and Plate Steel Fabricators

3215 HICKORY ST. DALLAS, TEXAS

THE TRADE

Tokheim Oil Tank and Pump Co., Fort Wayne, Ind., was awarded on March 11 the second star for its Army-Navy "E" Flag, in recognition of "continued outstanding achievement in war production."

This latest award marks the third citation of the Tokheim company for excellence in war production.

Tokheim was one of the first companies in the middle-west to convert its production to war materiel, and long before America's entry into the war, had built many thousands of aerial demolition bombs and trench mortar shells for the British government.

More recently, Tokheim has been producing large quantites of various ammunition components for the United States Ordnance Department and scores of intricate parts for other branches of the armed forces. It has also continued the production of several types of fuel-dispensing pumps for military requirements.

The Florence Stove Co. of Gardner, Mass., still 96% engaged in war work, is now producing a "permitted model" gas range, manufactured to WPB specifications, according to H. H. Morse, vice president in charge of sales for the company.

Two models of the gas range are being made—one for manufactured

President C. C. Oberly, of the Tokheim Oil Tank & Pump Co., Fort Wayne, Ind., celebrated his 54th birthday on Feb. 3. The Fort Wayne Chamber of Commerce Building, in the center of the city, was taken over for the night of Feb. 4, and more than 700 workers attended. Here President Oberly cuts his birthday cake before the crowd.

Use Tomorrow's Oven Heat Controls

Today pilots of the swift and deadly P-51 Mustangs use a new kind of heat control — engineered, designed and manufactured by Robertshaw. Called an Actuator, this precision instrument controls engine operating temperature automatically. Robertshaw Actuators have nearly 500 parts, many built to tolerances ranging from .0001 to .0004 inches.

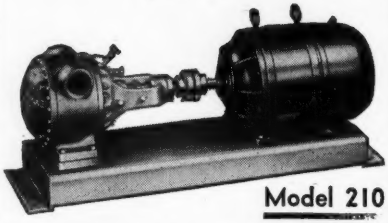
Tomorrow the skill and experience gained in the development of these Actuators will mean still better Robertshaw Oven Heat Controls. So tomorrow, more than ever, a Robertshaw Oven Heat Control will be a fuel and food saving plus which homemakers will be looking for on the ranges they buy.

Women's Interest Radio Programs Are Telling Homemakers About Robertshaw Oven Heat Controls

Robertshaw

ROBERTSHAW THERMOSTAT COMPANY • YOUNGWOOD, PENNSYLVANIA

SMITH
BUTANE-PROPANE
PUMPS



Model 210

STANDARD EQUIPMENT

With Leading LPG Engineers

MODEL 210 (Above) • 2" pipe size. Capacity 50 GPM at 1750 RPM for direct connecting to electric motor.

MODEL 211 • 2" pipe size. Capacity 50 GPM at 500 RPM for tank truck direct connected to power take-off.

MODEL 300 • 3" pipe size. Capacity 100 GPM at 1750 RPM for direct connecting to electric motor.

MODEL 301 • 3" pipe size. Capacity 100 GPM at 500 RPM for large transport service direct connected to power take-off drive.

•

BALANCED GEAR CONSTRUCTION RELIEVES BEARING LOADS

•

FLUID SEALED PACKING BOX ELIMINATES HAZARDOUS LEAKS

•

250 LBS. WORKING PRESSURE

•

Complete Assemblies
Including Motors

Write for literature and prices.

SMITH *Precision Products* **COMPANY**
1135 MISSION ST.-SOUTH PASADENA, CALIF.

"Permitted Model" Florence gas range.

or natural gas, and one for propane and butane, or LP-Gas. These models are manufactured at the Kankakee, Ill. plant of the company, which has just been awarded the Army-Navy "E" for excellence in war production.

Other war products produced by the Florence Stove Co. include air duct systems for the P-47 Thunderbolt, fuel tanks for the C-46 transport planes, burner units for the navy's 'safety-Still," shell cases for the army and navy, cartridge and powder tanks for the navy, and heat-treating of armor plates for tanks.

Colonel Willard F. Rockwell was recently elected chairman of the board at the annual meting of the Pittsburgh Equitable Meter Co. Colonel Rockwell, who has been president of the company since 1926, will continue as active head of the firm and serve

ORDER THE NEW MODEL 4-200V *Roper Gas Range* NOW!

ALL THESE FEATURES

One "Giant-Speed" and three "Speed" Top Burners.

"E-Z-ROLL" Broiler with "Enamo-Grill."

"Insta-Flame" Top Lighter.

Convenient "Observ-alite."

Big "3-in-1" Oven.

Enameled One-Piece Top.

"Non-Sag" Locking Oven Rack.

Excellent Insulation.

FOR YOU TO SELL TO THOSE WITH STOVE CERTIFICATES

Use your Stove Purchase Certificates to purchase this new gas range which bears the name Roper —a name that strikes a responsive note in the mind of every housewife. Well-built, smartly designed, it offers a complete top-of-range, broiler and oven cooking service.

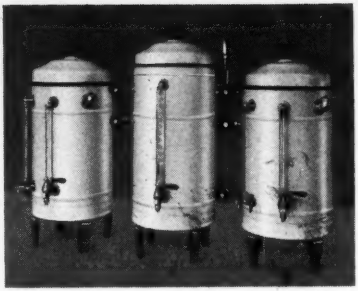
GEO. D. ROPER CORPORATION, Rockford, Illinois, manufacturer of ROPER, "America's Finest Gas Range," for all gases, including LP (Liquefied Petroleum) Gas.

ROPER
GAS RANGES

Offices and warehouses in: Atlanta · Chicago · Cleveland · Dallas · Los Angeles · Oakland Philadelphia

BUY WAR BONDS NOW ★ THE ROPER GAS RANGE LATER

NEW PRIORITY REGULATIONS ON
"VICTORY" COFFEE URNS



3-PIECE BATTERY *Plate No. 1854*

Equipment may be purchased for essential maintenance, repair and operation . . .

• Complete information will be found in our new Priority Assistance Kit described below.

"VICTORY" COFFEE URNS, designed for butane-propane, are made of high quality enameling iron, completely welded. Finished in vitreous porcelain enamel. Inside corners fully rounded. Liner welded to jar ring, forming one-piece, crevice-free unit. Other liners available of heat-resistant glass or Hall china in sizes up to 10 gallons. Combinette urns, batteries and institution urns available in capacities from 3 to 100 gallons.

SEND FOR OUR *New* PRIORITY ASSISTANCE KIT

Contains — 1. Complete instructions for purchasing "Victory" urns under WPB regulations. 2. Illustrated folder with specifications on "Victory" urns. 3. Specimen forms to guide you. 4. Blank forms for your actual use.

S. BLICKMAN, INC.
Manufacturers of Food Service Equipment
2105 Gregory Ave. • WEEHAWKEN, N. J.

E. W. MEYERS

W. S. POTTER

in the dual capacity of president and board chairman.

Subsequently announced were the elections of Edgar W. Meyers as director and William S. Potter as vice president.

Mr. Meyers, treasurer for the past 18 years, will continue to serve in that position.

Mr. Potter formerly was assistant works manager. He has been connected with the Pittsburgh concern for the past 14 years in various engineering and production capacities.

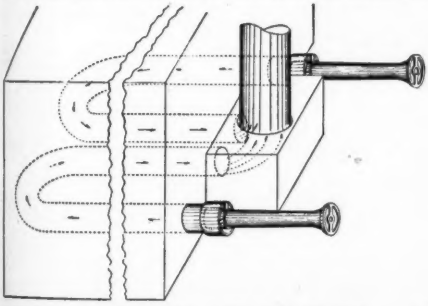
The Robertshaw Thermostate Co.'s commercial and industrial division is now offering its H 1 electric temperature control with manual reset overheating cut-off feature at 30 Church St., New York.

This device consists of a standard Model D 1 double pole, single throw electric temperature control, equipped with an auxiliary single pole, single throw switch which will automatically cut off all current as soon as operating temperature is exceeded by 30° F. in liquid or 50° F. in air due to negligence, or fusing of thermostatically operated contacts, etc.

During normal operation this control will break both sides of the line. In case of excessive temperatures, the safety contact (auxiliary switch) is broken on one line only and this is

For Real Efficiency IN HEATING LIQUIDS

One glance at the illustration below will tell you why Ransome Immersion Tube Burners are the acme of efficiency. There is no loss in heat transfer because the entire firing area is surrounded by liquid. This type of installation is indicated where the space beneath a kettle is very limited; where heavy sediment in solution settles and practically insulates the tank bottom against underfiring; or where there is a very low coefficient of heat transfer. ☆ We are specialists in all types of heat application. When you have a heating problem, we can help you.

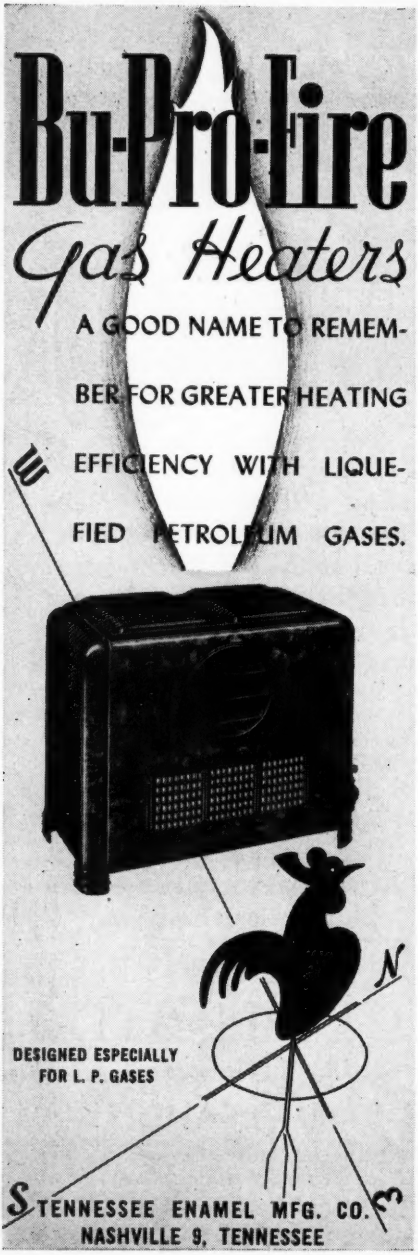


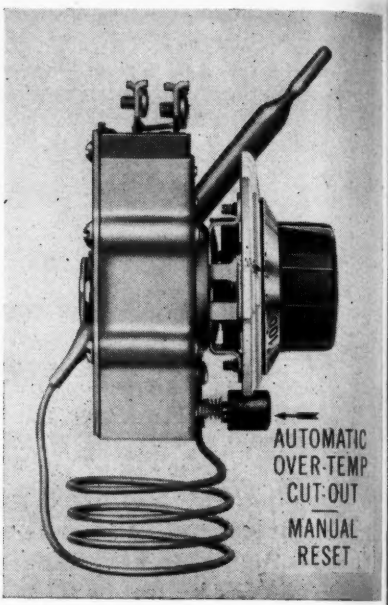
RANSOME COMPANY

Designing and Constructing Engineers

4030 HOLLIS STREET · EMERYVILLE, CALIFORNIA

Ransome


Bu-Pro-Fire
Gas Heaters
A GOOD NAME TO REMEMBER FOR GREATER HEATING EFFICIENCY WITH LIQUEFIED PETROLEUM GASES.
DESIGNED ESPECIALLY FOR L. P. GASES
TENNESSEE ENAMEL MFG. CO.
NASHVILLE 9, TENNESSEE



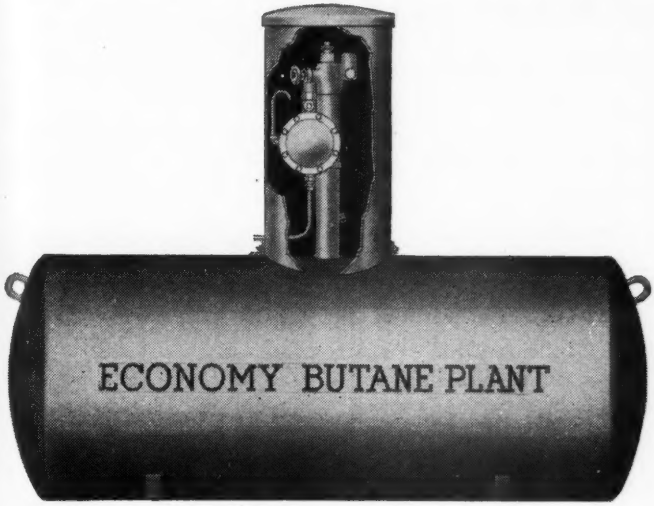
Robertshaw Control

sufficient to break the circuit to the heating element.

A limit control without the temperature controlling mechanism is also available. Both devices are fully described in a bulletin now ready for mailing.

George W. Mathews, Brunner Manufacturing Co. New York district manager, who has been operating from temporary quarters since his recent appointment, is now permanently located at 340 West Fifty-seventh St., New York City, according to an announcement to the trade by B. J. Scholl, sales manager.

Previous to his being given the New York post, Mr. Mathews had served the Brunner organization in the Detroit and Chicago territories. The position had been left vacant following the untimely death of Norman J.



The Industry Looks to the Leader

For Better Tank Values!

A Good Point to Remember—Economy Butane Systems are safety engineered. You can rely on EVERY Economy System being built absolutely in strict accordance with the A.S.M.E. Code!

Buy War Bonds!

DALLAS TANK AND WELDING COMPANY, INC.

201-5 W. COMMERCE ST. DALLAS, TEXAS

National Butane Gas Co.

Memphis, Tennessee

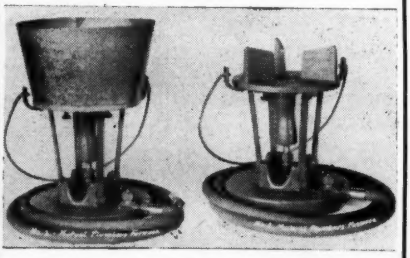
◆

OUR THREEFOLD OBJECTIVE:
1st, VICTORY
2nd, SERVICE
Last, PROFIT

◆

VICTORY, by building ONLY the equipment deemed essential by the WPB; SERVICE, by remaining in the Butane Gas Business ONLY; PROFIT, the greatest profit of all, The GOOD WILL of our customers.

Mutual's Streamline Portable Plumbers Furnace No. 2-A



This unit is well constructed, efficient and economical. It may be used in the field or shop. It can be adapted to any type of L.P. Gas cylinder. The modern plumbers throughout the country are using this unit. Write for details.

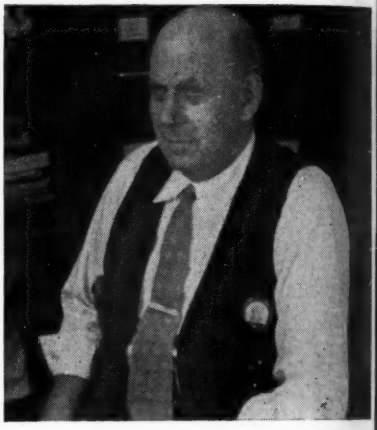
Mutual Liquid Gas Co.

3805 W. Imperial Hwy. Inglewood, Calif.

Cowles, previous incumbent, last November.

The Brunner organization, at present working on equipment for the war effort, is a large peacetime producer of compressor units for the LP-Gas industry.

Milton C. Taylor, master mechanic of The Bastian-Blessing Co., Chicago, led the group discussions in an im-



M. C. TAYLOR

portant division of "Share An Idea For Victory" Conference recently held in Chicago under the auspices of the Chicago Technical Societies Council, in cooperation with the Army, Navy and War Production Board. He also addressed the meeting on "Eliminating Operations by Fixture Design" and showed colored pictures of some of the new fixtures designed by himself and other engineers of his company which have speeded up the production of war equipment.

Mr. Taylor's talk covered only one of the several types of engineering and research activity developed by The Bastian-Blessing Co. in connection

"...and never had more satisfaction with anything we sold."

KREMER MOTOR SALES COMPANY

LINTON, NORTH DAKOTA

The Tappan Stove Co., Sept. 15, 1943
Mansfield,
Ohio.

Gentlemen:

In checking our records of bottle gas stoves we find that we sold quite a few of your stoves, and never had more satisfaction with anything we sold in the past than we did with the Tappan Bottle Gas stoves. As soon as you will be able to manufacture more stoves and ship them and we can sell them and the war is won, we will ask you to give us a direct proposition as we will sell 100 or more the first year if things go as well as now.

Sincerely yours,

KREMER MOTOR SALES CO.

By J. J. Kremer

Tappan keeps at it all the time ... bringing the Tappan dealer *continuous* national advertising ... interesting women in buying a postwar Tappan from *you*.

WRITE ABOUT A POSTWAR TAPPAN DEALER FRANCHISE. THE TAPPAN STOVE COMPANY, MANSFIELD, OHIO.

You'll find Tappan Ads in

LIFE • McCALL'S
BETTER HOMES AND GARDENS
LADIES' HOME JOURNAL
WOMAN'S HOME COMPANION
SUCCESSFUL FARMING
THE SATURDAY EVENING POST

TAPPAN
Gas Ranges

ARMY (E) NAVY

CP "Certified Performance"

For 63 years makers of quality ranges—100% in war work now

Distributors for
REGO
LP GAS EQUIPMENT
Hackney
BUTANE-PROPANE CYLINDERS

GAS EQUIPMENT CO., INC.
2620 South Ervay Street, Dallas, Texas
GAS EQUIPMENT SUPPLY CO.

For
"AFCO" Tanks
Write the
ARKANSAS FOUNDRY CO.
IRON & STEEL
Manufacturers of ASME U-69
Underground Storage Tanks
for Butane
Arkansas Foundry Company
1501 EAST SIXTH STREET
LITTLE ROCK, ARKANSAS
Phones
LD 66 Local 8231

with the many different kinds of war equipment it is manufacturing in its two factories, heretofore devoted to making LP-Gas controlling equipment.

V. H. GORDON

Victor H. Gordon, purchasing agent with the Grand Home Appliance Co., passed his preinduction test with Uncle Sam and now is waiting call for duty with the army. A member of the National Purchasing Agents of America, Mr. Gordon has been with Grand for the past five years.

According to company officials, no successor has been named as yet to Mr. Gordon's berth.

Frank H. Fischer, test engineer with the American Gas Association Cleveland Testing Laboratories, has resigned to accept a position as a development engineer with the Dearborn Stove Co. of Chicago, manufacturers of space heaters.

Entering the Laboratories' employ in 1939 following his graduation from Ohio State University as an electrical engineer, Mr. Fischer acquired a thorough training during the next four years in all phases of appliance testing and inspection. This, together with a wide acquaintanceship among gas appliance manufacturers, gained from visits to their factories has given him an excellent background for his new responsibilities.

California Oil Men Appointed To A.P.I. Committees

The American Petroleum Institute Division of Production has announced the rosters of various committees and subcommittees, for 1944, which deal with production and natural gas problems. Several California engineers and technical men have received appointments.

R. R. CRIPPEN

R. R. Crippen and J. A. Smith, The Texas Co.; G. B. Reece, Southern Counties Gas Co.; and B. G. Williams, Southern California Gas Co., have been appointed to the Central Committee on Measuring, Sampling and Testing Natural Gas & Natural Gasoline. Mr. Williams and Mr. Reece have also been selected to serve with others on Subcommittee 2-C on Sampling. D. M. Wolfe, Standard Oil Co., has been appointed to Subcommittees 2-A and 2-B on Analysis and Gas Measurement.

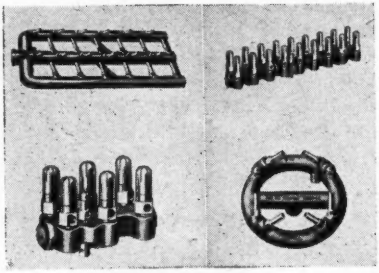
AGAEM Annual Meeting Will Be In Chicago, May 8-9

The annual meeting of the Association of Gas Appliance and Equipment Manufacturers will be held in Chicago May 8-9. New officers will be elected for the ensuing year.

Of special interest to LP-Gas men will be an address on the second day by Frank B. Boice, Shell Oil Co., Inc., New York, entitled "The Future of the Liquefied Petroleum Gas Industry."

American Butane and Propane Tanks—the best that more than forty years of specialized manufacturing experience can produce—assure maximum safety, highest efficiency and long, dependable service. You will find that our recommendations are right from every standpoint of design, materials, construction, workmanship and price. Consult American about your special storage problems. Your inquiries are invited.

AMERICAN PIPE & STEEL CORPORATION
Manufacturers and Distributors
ALHAMBRA CALIFORNIA



BARBER

Appliance Burners

We make many types of Burner Units to fit a wide range of gas appliances. Nearly 200 appliance makers use Barber Burners. All Barber units correctly designed and equipped with proper jets to suit the appliance. Barber is the ONE burner which assures complete combustion on Butane-Propane or ANY OTHER gas. Appliance builders and fuel distributors give their customers better service, more economy, by advising the use of Barber-equipped appliances. Submit your burner problems to us. Complete new Catalog on request.

THE BARBER GAS BURNER CO.
3704 Superior Ave. Cleveland, Ohio

L.C.RONEY, INC.

meets the demands of the nation. Our plant has gone to war for the duration — but when peace comes, L. C. RONEY products for the LP-Gas industry will meet the demands of dealers everywhere. In the meantime—our stock of LP-Gas equipment is still complete.

L.C. RONEY INC.
1740-44 W 59TH ST. • LOS ANGELES, CALIF.

Misunderstanding of M-9-c-4 Clarified by Interpretation

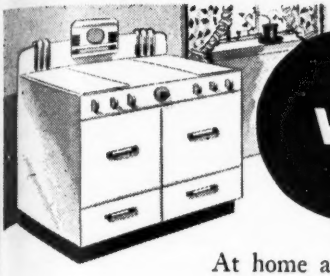
The following interpretation of M-9-c-4 (copper) as amended on Jan. 24, 1944, was forwarded to the Liquefied Petroleum Gas Association office by a member company with a request that the Association secure a ruling from WPB:

> "You can, as a repairman, use up to to $25 worth of material purchased under WPB controls for installing any unit of cooking, plumbing, heating, used air-conditioning or refrigeration."

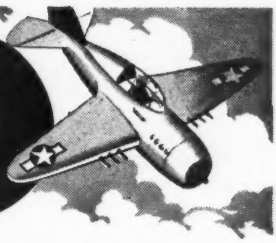
For the information of all, the Association gives in full the reply received from E. W. Roath, Administrator, Conservation Order M-9-c, WPB — Department 7300, Washington, D.C.:

> "You are advised that the aforementioned order, as amended Jan. 24, 1944, continues to prohibit the use of both new and used copper or copper base alloy pipe, tubing and fittings for the following purposes:
>
> "1. Installation in place, for plumbing, heating, or cooking purposes, in any building or structure.
>
> "2. Installation in place whether inside or outside of a building, in any water supply or water distribution system, in any water sprinkling system, in any underground gas supply or gas distribution system, or in any cooling tower or water tower.

"Subparagraph (b) (2) (ii) contains an exception which permits copper or copper base alloy fittings for installation in place, for the purpose of repair and maintenance, if at least one end of the fitting is connected to copper or copper base alloy pipe or tubing installed prior to July 22, 1942. Furthermore, copper or copper base alloy fittings may be connected to a



IN WAR OR PEACE



At home and on the industrial front, a dependable source of Butane and Propane means more satisfied customers. For more than fifty years, through wars and in peace times, Carter has faithfully served. Write our Marketing Department for higher quality Butane and Propane.

The **CARTER** Oil Company

DEHYDRATED **PROPANE • BUTANE**

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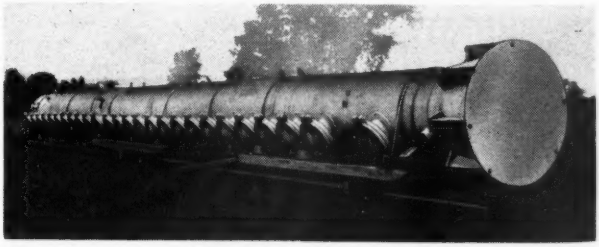
TULSA, OKLAHOMA

EXPERIENCE . . . and KNOWLEDGE . . . the unseen specifications



Downingtown special fabrication—A.P.I. and A.S.M.E. approved.

Safety and endurance in tanks for propane storage depend upon your fabricator's specifications for materials, plus his knowledge of design and construction.

Thorough knowledge and wide experience in fabrication . . . the specifications ***you can't see*** . . . . exist in adequate proportions in Downingtown propane tanks . . . Downingtown's name is the mark of ***quality.***

The tower illustrated is for another division of the oil industry, also served by Downingtown.

DOWNINGTOWN IRON WORKS
DOWNINGTOWN, PA.
WELDED and RIVETED PRODUCTS

SPRAGUE METERS

for

PROPANE - BUTANE SERVICE

•

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SPRAGUE METER COMPANY

Bridgeport, Conn.
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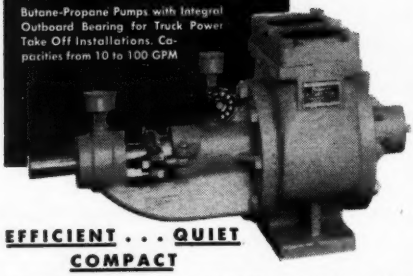
HR-119
HARMAN TRUCK-TYPE PUMP

Butane-Propane Pumps with Integral Outboard Bearing for Truck Power Take Off Installations. Capacities from 10 to 100 GPM



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COMPACT

POSITIVE DISPLACEMENT . . . REVERSIBLE ROTATION . . LOW FRICTION BEARINGS . . . NO CONTACTING METAL PARTS

The Harman principle of pump design embodies a single rotor on a shaft rotating off-center in the cylinder. Since 1931, Harman Rotary Pumps have been giving dependable year-in and year-out operating efficiency in the handing of liquified petroleum gases.

Write Today for Complete Information and Prices!

HARMAN EQUIPMENT COMPANY
Distributors
937 Santa Fe Avenue, Los Angeles 21 • 7 Front Street, San Francisco 11
PETROLEUM PRODUCTS HANDLING AND DISPENSING EQUIPMENT

for the account of the army, or navy of the United States, the United States maritime commission, or the war shipping administration.

"Accordingly, Order M-9-c-4 continues to prohibit the installation of copper or copper base alloy pipe, tubing and fittings for cooking, plumbing and heating purposes notwithstanding the contents of the release quoted in your letter."

H. M. Thomas, Long With Northwest Cities Gas, Retires

Howard M. Thomas, for 33 years in the gas utilities field in the Pacific Northwest, recently announced his retirement as president and general manager of the Northwest Cities Gas Co., of Walla Walla, Wash.

In speaking of his resignation, Mr. Thomas said, "A third of a century in one business continuously entitles one to some time out." He and Mrs. Thomas will move to their farm near Forest Grove, Ore.

Prior to joining Northwest Cities Gas in 1929, at which time he became general manager, Mr. Thomas had been associated with the Portland Gas & Coke Co., and subsequently with Pacific Power & Light. Though he is departing from actual service, he will retain his stock in the company and will continue as a member of the board of directors.

Northwest Cities Gas operates in Eugene, Springfield, Astoria and Pendleton, Ore., Yakima, Walla Walla and Clarkston, Wash., and Lewiston, Idaho. According to Mr. Thomas, the company is an independent Northwest concern, with no holding company affiliations, and with no preferred stock or bonds outstanding. Butane is served in four of the above named communities.

The new general manager, Arthur J. Anderson, also a member of the

board and a University of Oregon graduate, has been assistant general manager, sales manager and operations manager for Pendleton and Walla Walla. Previous to 1942 he managed the Astoria property for five years and from 1930 to 1937 was manager at Pendleton.

Newly elected to the board of directors are N. S. Briskman, F. T. Sutton, G. D. Hall, A. J. Anderson, H. M. Thomas and B. J. Lehrer. Mr. Lehrer will serve as vice president and secretary.

Two New Domestic Gas Research Bulletins Published

Two more bulletins, resulting from the accelerated program of fundamental research being conducted by the American Gas Association at its Testing Laboratories, is now available to those interested. Covering special phases of domestic cooking and burner research, their initial distribution was recently completed.

The first is "Single Point Flash Tube Ignition of Oven and Broiler Burners," the fifth of a series on domestic gas cooking.

The second bulletin is "Primary Air Control Devices for Atmospheric Gas Burners." It is the fifth of a series on burner research.

Oral Testimony on Rail Rates Given Before ICC in Capital

There is still pending before the ICC in Washington the rail rate case hearing which will determine whether or not Southern butane dealers will have to pay rail freight charges based upon the actual weight of the fuel (4.7 lbs. per gal.) or upon the old gasoline standard of 6.5 lbs. per gal.

Referring to the current progress of the case, K. H. Koach, general manager of Green's Fuel, Inc., who has led the attack against the railroads,

WAR TESTED

SINCLAIR LP-GASES

War is a survival of the fittest. That's why only the finest men, material and machines are selected. Sinclair Liquefied Petroleum Gases have proved their "war worth" . . . fuelling bulldozers, tractors and earthmovers, maintenance units, and field kitchens—in defense plants and housing units. Thousands of veterans are learning to appreciate just how adaptable, speedy, convenient, practical and economical liquefied gases are.

In post-war years, LP-Gases will still have their war-proved virtues, with many new uses—in many new products.

For serving regular industrial and domestic customers in addition to war demands, Sinclair invites you to enlist the energy, power, speed and utility of its Liquefied Petroleum Gases.

Protect your fuel requirements by contracting with

SINCLAIR PRAIRIE OIL COMPANY

Liquefied Petroleum Gas Division
Sinclair Bldg. Tulsa, Oklahoma

BUTANE-PROPANE EQUIPMENT
PUMPS—METERS—HOSE
VALVES—FITTINGS
REGULATORS

Complete Dispensing Systems

FACTORY SALES AND SERVICE
FOR
ROADMASTER BUTANE CARBURETION

Roadmaster Sales Corp.
of Texas
317 So. Pearl Street Dallas, Texas

You Should Know More About

CENTURY

Manufacturers of:

- Butane-Propane carburetors and heat exchangers.
- Combination butane-gasoline carburetors.
- Units for trucks, tractors, oilfield and other stationary equipment.

While we are working principally on War contracts, we have a limited production of our equipment to supply the needs of firms qualified under WPB regulations.

CENTURY
GAS EQUIPMENT CO.
11188 Long Beach Blvd.
LYNWOOD, CALIFORNIA

stated in a letter of April 11th date

"In Washington on March 31 th rate case hearing under I & S pro ceedings took place before Divisio Two of the ICC. Oral argument wa presented by our counsel and counse for the carriers based on testimon introduced at the Louisville hearin Feb. 9th.

"The Industry Committee is confi dent that a favorable decision will b rendered although we do not, o course, know just when it will b handed down. I presume that this wil not take place for at least four week or possibly longer."

Errors Corrected In Maximum Price Regulation No. 88

Seven errors inadvertently made i the new Maximum Price Regulatio No. 88 (Amendment 3), covering re tail sales of fuel oil, gasoline an liquefied petroleum gas, have bee corrected by the Office of Price Ad ministration.

Because of the essentially correcti nature of the changes, they are ma retroactively effective as of the da of the new regulation, Feb. 19, 194 No change in ceiling prices is involve

The following changes of interest t LP-Gas men, are quoted:

"It is made clear that, except whe sold as motor fuel, liquefied petro leum gas is covered at retail by th General Maximum Price Regulation

"The products covered by the regu lation include those which are im ported as well as those produced i the United States."

"A seller to a Government agenc on a sale made pursuant to public bi ding may charge the ceiling of anoth bidder only if such ceiling was dete mined under formula provisions of th regulation or if the ceiling was esta lished by individual application."

THOMAS Cylinder Truck Saves Men, Time and Lawns

- ALSO FOR STOVES, BOXES, CRATES
- PNEUMATIC RUBBER TIRES AVAILABLE NOW

An all purpose, one man truck for moving both cylinders and appliances. No more back-breaking lifting, either. Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide Bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly. Rounded handle grips permit skidding from end of delivery truck. Time saving, labor saving, cost cutting. Available now.

Write for prices and folder.

THOMAS TRUCK & CASTER COMPANY

ARMY E NAVY

4472 Mississippi River, Keokuk, Ia

The economical fuels, Butane and Propane, for industrial and domestic use.

WHEN THE SQUALL COMES— YOU'LL BE GLAD YOU USE

Anchorgas

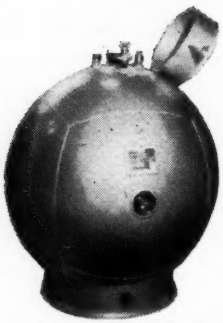
In every emergency you can depend on this high quality Butane and Propane to see you through.

A prompt, friendly service. Your inquiry will be appreciated.

ANCHOR PETROLEUM COMPANY

Atlas Life Bldg. Tulsa, Okla.

MODERN DESIGN



FOR DOMESTIC PROPANE USERS

Built by

SUPERIOR TANK & CONSTRUCTION CO.

6155 South Eastern Los Angeles, California
Phones: AN-4157 Night: Whittier 413-407

K-10

Six TIMES MORE POWER

Multiply the ordinary solenoid valve by six and you get an idea of the powerful lever action developed by General Controls' K-10. This quiet, two-wire, current failure valve is easy to install on air-conditioning, combustion or refrigeration equipment. K-10 handles air, gas, water, light and heavy oils, and steam. Positive opening and complete shut-off are assured. Designed for either normally closed or open. Available any voltage. A.C. or D.C. and up to 1¼" I.P.S., port sizes up to ⅝".

GENERAL CONTROLS

801 ALLEN AVENUE • GLENDALE 1, CALIF.

BRANCHES: Boston, New York, Philadelphia, Cleveland, Detroit, Denver, Chicago, Dallas and San Francisco

AGA Domestic Research Program Is Expanded

The American Gas Association program of fundamental research in the utilization of gas for domestic purposes is being greatly expanded through recent action of the executive board, according to an announcement by Dr. F. E. Vandaveer, assistant director of the AGA Testing Laboratories. Portions of research projects that have been under way for some time are being revamped and speeded up. In addition, other portions of these research projects are being rapidly brought to the point where intensive laboratory work can be undertaken at the earliest possible time.

The basic conception of AGA domestic gas research has been developed by the research committee over a period of several years through the assistance of a technical advisory committee for each of the basic projects. These technical advisory committees are composed of utility and appliance manufacturing engineers and executives. From this basic conception has been developed comprehensive detailed working outlines for each section of projects in cooking, water heating, central space heating, direct space heating and atmospheric burners.

Overcome Technical Problems

This extensive domestic gas research program is designed to overcome fundamental technical problems that limit the optimum application of gas in the home, and to provide the soundest possible technical foundation on which gas appliances of the future will be designed and built. These fundamentals consist of improved and new methods of combustion and improvement in the different possible methods of transmitting heat to cooking

vessels, to hot water for domestic service, and to steam, water and air for househeating systems. They further consist of fundamentals studies of new and improved methods of ignition, heat distribution, venting, etc., and the elimination of all noises of combustion, as well as other noises in appliances.

This research project is well advanced at the AGA Laboratories where the following projects have been assigned:

Domestic Gas Cooking Research.

Domestic Gas Water Heating Research.

Fundamentals of Atmosphere Gas Burner Design.

Research in Central Gas Space Heating.

All But One for LP-Gas

Seven research bulletins have been completed and published in connection with this program. They are:

Domestic Gas Range Research (Bulletin No. 7).

Domestic Gas Range Research (Bulletin No. 8).

Fundamentals of Domestic Gas Water Heating (Bulletin No. 9).

Research in Fundamentals of Atmospheric Gas Burner Design (Bulletin No. 10).

Principles of Gas Storage Water Heater Design for Maximum Hot Water Delivery (Bulletin No. 12).

Fundamentals of Design of Atmospheric Gas Burner Ports (Bulletin No. 13).

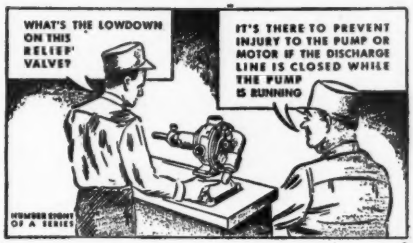
Fundamentals of Automatic Flash Tube Lighter Design (Bulletin No. 14).

All but Bulletin No. 14 apply to liquefied petroleum gas applications.

Off-Shore Shipment Order Has Been Reissued

ODT has announced reissuance of General Order ODT 16, which governs transportation of shipments under ODT permits, into United States ports for offshore movement to points outside continental United States.

The order was issued March 11.


WHAT'S THE LOWDOWN ON THIS RELIEF VALVE?
IT'S THERE TO PREVENT INJURY TO THE PUMP OR MOTOR IF THE DISCHARGE LINE IS CLOSED WHILE THE PUMP IS RUNNING
NUMBER EIGHT OF A SERIES

How To Get The Most Work Out Of Your VIKING PUMPS

Viking Rotary Pumps are positive in action, delivering an equal amount per revolution of the pump shaft. If there is any chance that the discharge line may be shut off when the pump is running, install a Viking relief valve to prevent injury to the pump or motor. Pressure of this valve can be regulated through the adjusting screw which tightens or loosens the valve spring. When installing such a valve, the larger end, where the adjusting screw is located, must always be placed toward the suction side of the pump.

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UNITED STATES
Automatic Water Heaters

The "QUALITY" Line

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A COMPLETE LINE in size and price range . . . a heater for every purpose

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United States Heater Co.
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BUTANE and PROPANE TANK HEADS

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for the manufacturers of
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* * * * STANDARD RADIUS * * * *
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DIAMETERS UP THROUGH 60"
THICKNESS UP THROUGH 1/2"
Write for Head Catalog

The COMMERCIAL SHEARING & STAMPING COMPANY
YOUNGSTOWN, OHIO.

Louisiana Dealers Petition Washington to Clarify Orders

At a special meeting of the executive board of the Louisiana Dealers Association, Inc., held at the Roosevelt Hotel in New Orleans on April 12, the members of the board discussed problems and questions that have arisen in their business by reason of existing orders that have been put out by various government agencies, according to Hamlet D. May, executive secretary. Mr. May stated further:

"It was pointed out that present orders from government agencies attempt to limit the use of liquefied petroleum gas dealers. Yet at the same time the orders permit hardware, furniture, chain and department stores to sell heaters which in many instances will be attached to LP-Gas installations and thus increase the consumption of LP-Gas.

Dealers Want to Cooperate

"The board by resolution went on record expressing their desire to cooperate with all of the government agencies and expressing their hope that the various conflicting orders could in some way be cleared up."

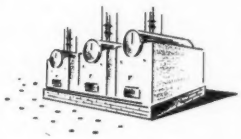
The resolution reads in part:

" . . . This association is somewhat confused by conflicting orders coming from various Government agencies and is desirous of an expression . . . to help clear the matter up. Through the OPA heater rationing program in which is included the rationing of LP-Gas heaters, our dealers are now being encouraged to increase their inventories of heaters during the summer months, in order to hold down requirements for heaters when the peak comes in the winter, and are also being encouraged by the Office of Defense Transportation to purchase heaters this summer and not cause undue burden on the nation's transportation facilities, in our ordering

This is "turn it on—turn it off" season

Cold today, warm tomorrow. Now you want heat. Now you don't. That's the problem of heating during mild weather—how to keep the heating system in tune with the times.

Tough going for Central Heating



Central heating systems are not designed to be turned off or on at will. At low operation, a large heating plant is not only inefficient but costly and unsatisfactory.

Easy as 1·2·3 with a Reznor Unit Heater

You can turn on a Gas-Fired Reznor and start a flow of heat or turn it off and stop the flow . . . all in the matter of seconds. It's very efficient when used as auxiliary heat or as the primary source. Several sizes available.

Send for Catalog

Reznor Unit Heaters can be suspended or placed on the floor. Several different sizes are available to take care of all conditions. Send for the catalog and make your selection.

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Reznor Manufacturing Co., 304 James St., Mercer, Penna.

"GAS HEATERS EXCLUSIVELY SINCE 1888"

WHEN BETTER EQUIPMENT IS MADE

WE'LL HAVE IT!

Scaife ICC Cylinders
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Underground Butane and Propane Systems
Smith Liquid Meters
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Smith Pumps
Regulators
Cylinder Valves
Manifolds
Pig Tails
Hewitt Butane-Propane Hose
Boss Couplings
Repair Parts
Roadmaster Carburetors

Let Our Engineers Assist You With Your Problems

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TULSA, OKLAHOMA

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That Stands
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Tanks for
most all L.P.G.
requirements

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Boiler and Tank Co.

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For Safety
and Economy

ETHYL
MERCAPTAN

—Purified—

The ACCEPTED
standard
odorant
for liquefied
petroleum
gases.

MALLINCKRODT
CHEMICAL WORKS

ST. LOUIS NEW YORK

large quantities of heaters in the winter season.

"The Office of Price Administration, through its heater rationing program, has made it easy for a person to obtain a certificate, entitling him to purchase a gas heater, either for LP-Gas or natural gas. The Petroleum Administrator for War in his efforts to hold down the consumption of LP-Gas during the winter months, will not permit the addition of heaters either with a new LP-Gas installation or to an already existing LP-Gas installation. We LP-Gas dealers, are, therefore, at a disadvantage when we refuse to sell and install heaters for these customers, in that they can easily purchase natural gas or LP-Gas heaters from local hardware, furniture, chain and department stores, with their O.P.A. certificates, and have them connected to their LP-Gas systems in one manner or another."

Extra Heavy Cast Iron Pipe May Replace "Victory Weight"

The WPB has granted permission to produce extra-heavy cast iron soil pipe to replace "victory weight" pipe which has been manufactured since June 1, 1942.

Reference is to Schedule 4 to Order L-43, as amended, issued March 15.

Combination Stoves Classed as Ranges

Amendment 8 to Ration Order 9A (dated April 12) provides that, in computing registered or allowable inventories, dealers must treat combination heating and cooking stoves as gas cooking stoves.

Moreover, the amendment allows dealers to use a certificate which calls for a combination stove to obtain a gas cooking stove and vice versa.

A combination stove is defined as a combination heating and cooking stove, designed as a two-part stove

Types of Fires And How to Fight Them

EFFECTIVE "first aid" fire fighting* requires the use of a suitable extinguisher on each different class of fire. There are three classes of fires, each determined by what is burning; and for each class there are appropriate extinguishers.

Fires in ordinary combustible materials, such as wood, paper, textiles, rubbish, etc., are known as *Class A* fires. They are best put out with water, which has a cooling and quenching effect. Extinguishers which contain water or chemicals and water are the soda-acid, foam, pump tank, gas cartridge and loaded stream types.

Vaporizing liquid and carbon dioxide extinguishers also are effective for controlling small Class A fires, if the fires are not deep-seated and if there are no strong air currents to dissipate the vapor or gas.

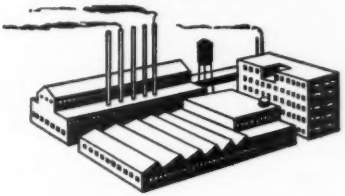
When Blanketing Needed

Fires in flammable liquids, grease, etc., are known as *Class B* fires. Here a blanketing effect is essential, to cut off the oxygen supply. Suitable extinguishers are foam, vaporizing liquid, carbon dioxide, and loaded stream.

Fires in electrical equipment, *Class C* fires, require the use of extinguishants that will neither damage equipment nor convey an electrical charge along the hose stream to the operator. Vaporizing liquid and carbon dioxide extinguishers are suitable for use on fires of this class. However, in some cases, fires in electrical equipment

*This article prepared by Safety Research Institute, Inc., New York.

The Flame of the Forge



The quickened tempo of Western production has brought a bright opportunity to prove the usefulness of liquefied gases in many fields. Standard of California has met the challenge by maintaining carefully determined standards of quality, by utilizing its facilities to make as much liquefied petroleum gas available as possible.

Today's Standard L.P.G. service is necessarily streamlined to feed the flame in the war forges—but it's aimed to increase the stature of the entire industry in a peaceful tomorrow.

BU-GAS
Reg. U. S. Pat. Off.
For Automotive and Industrial Use

FLAMO
Reg. U. S. Pat. Off.
For Homes Beyond the Gas Mains

CALOL
INDUSTRIAL GAS No. 1
Reg. U. S. Pat. Off.
For Gas Manufacturing Companies

PRO-GAS
Reg. U. S. Pat. Off.
For Industrial Heating and Commercial Purposes

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HELP WANTED

EMPLOYMENT OFFERED: PROPANE Transport Truck driver. Over 38. Experience with bulk storage plant. References. Southern Indiana Liquefied Gas Company, 749 Main Street, Vevay, Indiana.

EQUIPMENT WANTED

WANTED—PROPANE CYLINDERS, PREfer 100-lb. size. Barnesville Development Co., Barnesville, Ohio.

WANTED—BUTANE WATER HEATERS, 20 Gallon (200), also Natural Gas heaters. J. A. Davis, 4720 Canal St., New Orleans, La.

APPLIANCES FOR SALE

FOR SALE—36" TABLE TOP RANGES, Space Heaters, Floor Furnaces, Victory Cooker Ranges. Immediate shipment on certificates of priorities. John A. Davis Co., 4720 Canal St., New Orleans, La.

BUSINESS OPPORTUNITY WANTED

INDIVIDUAL IS INTERESTED IN BUYing all or part interest in profitable LP-Gas distributing company, preferably in the East. Confidentially handled. Box 275, Butane-Propane News, 1709 W. 8th St., Los Angeles 14, Calif.

TANKS

In the Pacific Northwest

See

King Bros., Inc.

For Your Tank and Cylinder Requirements

3500 S. E. 17th Ave., Portland, Ore.

may be such that the quenching and cooling effect of large quantities of water is necessary. In such cases, the equipment should be made electrically dead before water or water solution is applied.

The Underwriters' Laboratories label on every approved fire extinguisher indicates the class or classes of fire for which that extinguisher is considered suitable and the number of such extinguishers considered necessary to comprise one unit of protection. This, a 2½-gal. foam extinguisher is designated "A-1; B-1," meaning that it is approved for use on both Class A and Class B fires, and that one such extinguisher is required to make one unit of protection. These units of protection are standards that have been established by Underwriters' Laboratories for convenience in measuring the relative fire protection afforded by different kinds and sizes of portable fire extinguishing appliances.

Number of Units Required

The number of units of protection required in any given location depends upon the relative severity of the incipient fire to be anticipated. The National Fire Protection Association recognizes three general classes of occupancies—light hazard, ordinary combustible and extra hazardous. A guide for determining the number of units of protection required for each class of occupancy has been worked out. For instancee, a place where fires of average intensity may be anticipated should have units so located that a person will not have to travel more than 50 ft. from any point to reach the nearest unit, but at least one unit will be required for each 2500 sq. ft. of floor area.

The inspection department having

jurisdiction usually will determine the degree of hazard of a given occupancy. Further information is contained in a pamphlet entitled "First Aid Fire Appliances," published by the National Board of Fire Underwriters, 85 John St., New York.

"How to Operate Extinguishers" will appear next month, followed by "How to Fight Different Kinds of Fires."

289,569,777 Gals. Natural Gasoline Produced by Phillips

According to a recently released report, the Phillips Petroleum Co., Bartlesville, Okla., during 1943 operated 36 natural gasoline plants and held interests in four others. Total production was 289,569,777 gallons of natural gasoline (26-70 grade equivalent), 3.2% above 1942.

A new gasoline plant, placed in operation Dec. 1, 1943, is processing gas passing through Panhandle Eastern's pipe line in Moore county, Texas, as well as gas of the company.

Increased production of crude oil in several areas where the company has natural gasoline plants has made available larger volumes of casinghead gas and caused a corresponding increase in natural gasoline production.

Phillips' three refineries ran to stills, 26,306,651 bbls. of crude oil or 5.3% more than during the previous year. This increase was occasioned by the vital necessity of manufacturing maximum quantities of war products.

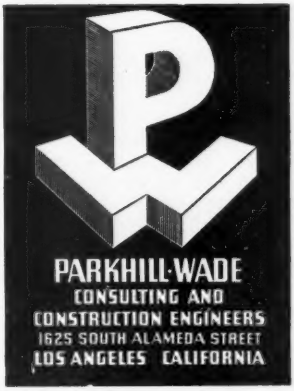
The refineries produced substantial quantities of aviation gasoline components, including high grade butylene alkylate manufactured by the company's new and very successful hydrofluoric acid alkylation process.

ARE YOUR FILES
COMPLETE
On The Selection Of
VENTED & UNVENTED
BRILLIANT FIRE
GAS HEATERS
now available under WPB & OPA Regulations

Write for illustrated Circular No. 460 listing available models together with information on how they can be bought and sold.

The Ohio Foundry & Mfg., Co.
STEUBENVILLE, OHIO
"Quality Heating Equipment Since 1846"

Refineries and Plants
For Recovery of
Isobutane
N-Butane
Propane



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